



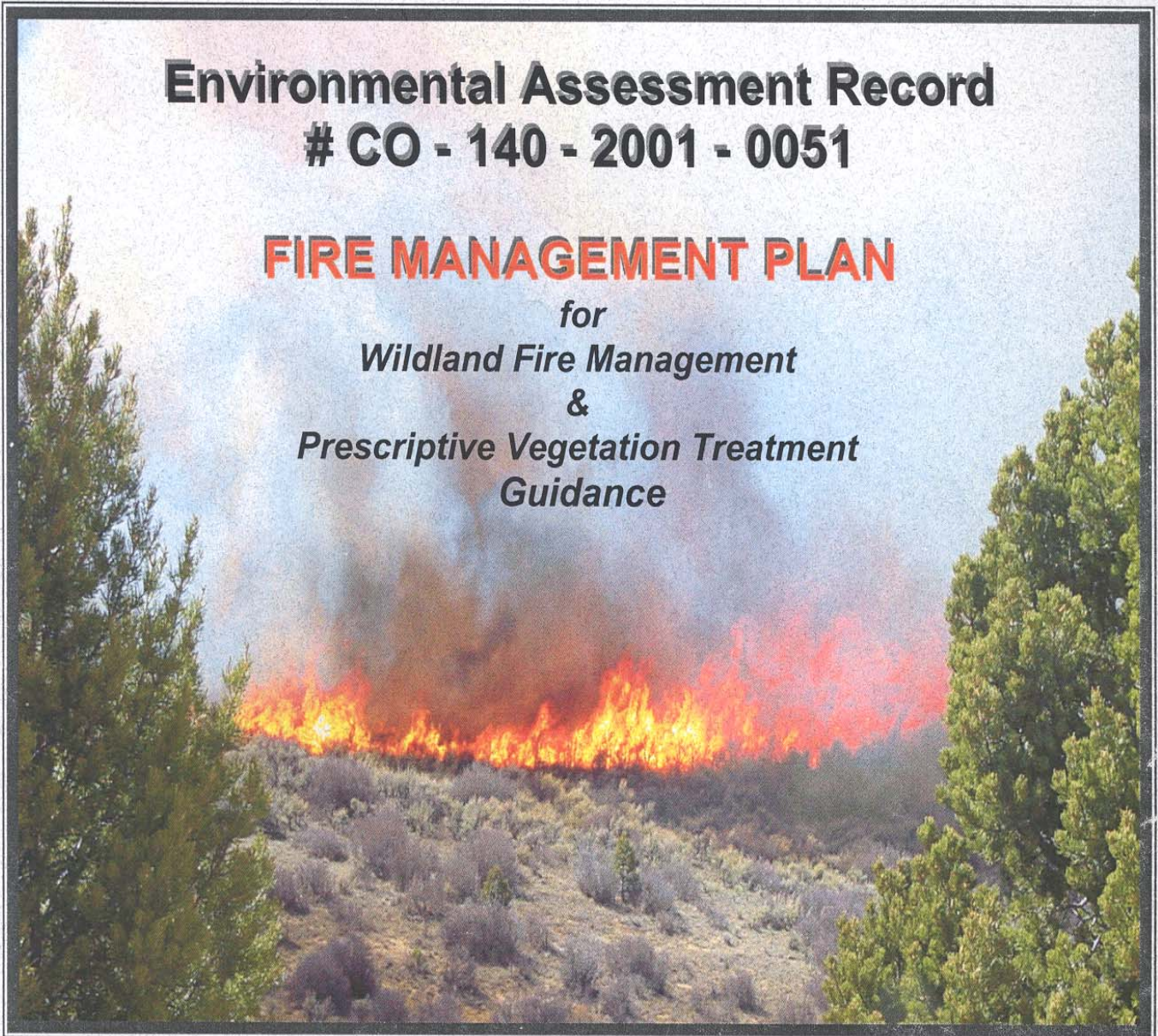
U.S. Department of the Interior

Bureau of Land Management  
Glenwood Springs Field Office

# **Environmental Assessment Record** **# CO - 140 - 2001 - 0051**

## **FIRE MANAGEMENT PLAN**

*for*  
*Wildland Fire Management*  
*&*  
*Prescriptive Vegetation Treatment*  
*Guidance*



Covering Public Lands managed by the Glenwood Springs Field Office within  
Eagle, Garfield, Pitkin, Mesa, Rio Blanco and Routt Counties of Colorado.



U. S. Department of the Interior  
**BUREAU OF LAND MANAGEMENT**  
Glenwood Springs Field Office

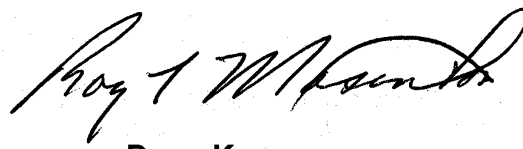
**DECISION RECORD**  
  
**&**  
  
**RESOURCE MANAGEMENT PLAN AMENDMENT**

for the

**Glenwood Spring Field Office**  
**Fire Management Plan**

**CO-140-2001-0051 EA**

*Approved by:*

*acting for*   
Doug Koza  
Acting COLORADO STATE DIRECTOR  
Bureau of Land Management

**September 2002**

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## GSFO FIRE MANAGEMENT PLAN - DECISION RECORD

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### DECISION

To implement the Proposed Action - Fire Management Plan (FMP) as analyzed in Environmental Assessment (EA) # CO-140-2001-0051 and amend the Glenwood Springs Field Office (GSFO) Resource Management Plan (RMP) of 1984 (Revised 1988).

### SPECIFIC FEATURES OF THE DECISION

The EA and FMP define a strategy for managing and prioritizing wildland fire and prescribing vegetation treatments for fuel hazard reduction and resource benefit. Public lands will be managed under one of four fire management zones (FMZs) for the purposes of wildland fire and prescribed vegetation management. The EA and FMP also serve as a programmatic analysis for "fuel hazard reduction" vegetation treatments and vegetation treatments to benefit resources. This will give general direction to guide vegetation treatments and help coordinate vegetation treatments where possible.

### RATIONALE FOR DECISION

The FMP was based upon the best available science and completed to comply with the 2001 Federal Wildland Fire Management Policy (2001 Federal Fire Policy). The Policy directed BLM Field Offices to have an approved FMP for every area with burnable vegetation. The amendment to the GSFO RMP brings the GSFO land use plan in compliance with 2001 Federal Wildland Fire Management Policy (2001 Federal Fire Policy).

The following benefits are anticipated to occur from implementing the FMP:

#### Human Health and Social Benefits:

- Firefighter and public safety is maintained as first priority in every fire management activity.
- A strategic and long-term strategy for fuel reduction and vegetation treatments will better protect firefighters, human lives and property.
- The FMP incorporates public health and environmental quality considerations.

#### Environmental Benefits:

- The FMP will improve public land health, as defined by the *Colorado Standards for Public Land Health*.
- The FMP will reduce environmental impacts (i.e. excessive soil erosion, degraded water quality, damage to wildlife habitat) from catastrophic wildland fires.
- The FMP recognizes areas where wildland fire can be used as an essential ecological process and an agent of natural change under preset conditions.
- The FMP supports other resource management activities and their implementation.
- Special status species and their habitat will benefit from upfront consideration in wildland fire planning and prescriptive vegetation management.

#### Economic Benefits

- Proactive vegetation treatments are also presumed to lower costs to taxpayers over the long-term. Suppressing large or catastrophic wildland fires imposes significant costs for mobilizing firefighters and fire suppression equipment, including fire engines, aircraft, and associated fuels and supplies.

## **MITIGATION MEASURES**

Wildland fire suppression and prescribed vegetation treatments can have detrimental social, economic and environmental impacts. The FMP (Parts 5, 9, 10, 11, 12, 15 and 16) outlines measures and guidelines to reduce the negative the affects of implementing the FMP.

## **COORDINATION**

Federal, State, local, and interagency, coordination were essential in the development of the FMP and will be fundamental in the application of the FMP . The proposed FMP was coordinated across ownership and jurisdictional boundaries to create a coordinated, interagency effort that specifies appropriate management actions for wildland fires and prescriptive vegetation treatments.

The FMP was completed with the assistance of the Colorado State Forest Service, Pitkin County, Eagle County, Garfield County, Rio Blanco County, Routt County, Mesa County, local towns, local Volunteer Fire Departments, Colorado Division of Wildlife, US Forest Service, US Fish and Wildlife Service, and the Colorado Air Pollution Control Division.

## **PUBLIC INVOLVEMENT**

A Notice of Intent to amend the RMP was published in the Federal Register on May 24, 2001 (Volume 66, Number 101, Page 28759 - 28760).

Public open houses were held in Glenwood Springs on June 26, 2001 and Eagle on June 28, 2001. The open houses provided ideas and suggestions that helped create a draft FMP. The GSFO then asked for comments on the draft FMP via a formal comment period which ran from July 30, 2001 through August 31, 2001. Comments were accepted and coordination with local, State and Federal agencies continued through April 2002. The 60-day Governor's consistency review and the 30-day protest period occurred in June and July of 2002 and both ended on August 2, 2002.

Throughout the planning process interested persons could visit the GSFO website at <http://www.co.blm.gov/gsra/gshome.htm> for current information or to see maps of the proposed fire management zones or contact the project planner.

## **RATIONALE FOR NOT SELECTING ALTERNATIVE A (CONTINUATION OF CURRENT MANAGEMENT)**

The continuation of existing management alternative was not selected because:

1. No FMP existed for the GSFO and the current GSFO wildland fire management strategy did not comply with the 2001 Federal Wildland Fire Management Policy (2001 Federal Fire Policy) or the guiding principles and policies of the 2001 Federal Wildland Fire Management Policy.
2. Land use and resource management objectives receive little consideration and wildland fires can not be used as a management tool to help accomplish resource management objectives.
3. Threatened and endangered species and other special status species were not thoroughly considered in current wildland fire management strategy.
4. No comprehensive guidance would be applied to prescriptive vegetation treatments.
5. Existing wildland fire management did not consider the *Colorado Standards for Public Land Health* designed to maintain or achieve healthy public lands.
6. The current GSFO wildland fire management strategy was not coordinated across ownership and jurisdictional boundaries

## **ALTERNATIVES CONSIDERED BUT ELIMINATED FROM CONSIDERATION**

Allowing wildland fires to burn, with little or no fire management response was considered. However, no fire management response would likely lead to unnecessary loss of life, property, and resources. Therefore, this alternative was eliminated from further consideration.

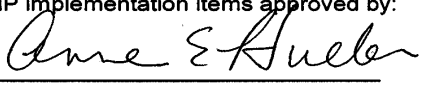
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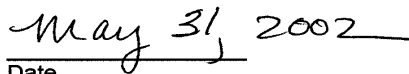
## **FIRE MANAGEMENT PLAN - FINDING OF NO SIGNIFICANT IMPACT**

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I have reviewed the Proposed Action - Fire Management Plan (FMP) as analyzed in Environmental Assessment (EA) # CO-140-2001-0051 including the explanation and resolution of any potentially significant environmental impacts. I have determined that the proposed action, with the identified mitigation measures, as described in the proposed Fire Management Plan will not have any significant impacts on the human environment and that an Environmental Impact Statement (EIS) is not required.

RMP implementation items approved by:

  
\_\_\_\_\_  
Anne E. Huebner  
Field Office Manager

  
\_\_\_\_\_  
Date

## TABLE OF CONTENTS

<b>SUMMARY DESCRIPTION OF THE PROPOSED ACTION</b>	Page 1
<b>INTRODUCTION</b>	Page 5
<b>RELATIONSHIP TO STATUTES, REGULATIONS, OR OTHER PLANS</b>	Page 6
<b>PROPOSED ACTION AND ALTERNATIVES</b>	Page 7
<b>COMPARISON OF ALTERNATIVES</b>	Page 8
<b>AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES / MITIGATION MEASURES</b>	Page 9
<b>Setting</b> .....	Page 9
<b>Critical Elements</b>	
Air Quality.....	Page 9
Cultural Resources.....	Page 11
Native American Religious Concerns.....	Page 13
Floodplains, Wetlands, Riparian Zones and Alluvial Valleys.....	Page 14
Prime and Unique Farmlands.....	Page 15
Federally Threatened, Endangered and Candidate Species.....	Page 15
BLM Sensitive Species.....	Page 33
Wastes, Hazardous or Solid.....	Page 43
Water Quality, Surface or Ground.....	Page 44
Wilderness, Areas of Critical Environmental Concern, Wild & Scenic Rivers.....	Page 45
Environmental Justice.....	Page 47
Invasive, Non-native Species.....	Page 47
<b>Non-Critical Elements</b>	
Access and Transportation.....	Page 48
Forest Management.....	Page 49
Geology and Minerals.....	Page 50
Hydrology and Water Rights.....	Page 51
Land Status and Realty Authorizations.....	Page 52
Range Management.....	Page 52
Recreation.....	Page 53
Soils.....	Page 54
Vegetation.....	Page 57
Visual Resources.....	Page 62
Wildlife, Aquatic.....	Page 63
Wildlife, Terrestrial.....	Page 64
Economics.....	Page 67
<b>LIST OF PREPARERS</b>	Page 69
<b>PUBLIC PARTICIPATION</b>	Page 70
<b>REFERENCES AND LITERATURE CITED</b>	Page 71
<b>ATTACHMENT A - GSFO Fire Management Zone Map</b>	Page 73
<b>ATTACHMENT B - USF&amp;WS Concurrence Letter - GSFO FMP Biological Assessment</b>	Page 75

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## SUMMARY DESCRIPTION OF THE PROPOSED ACTION

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This EA describes and evaluates the implementing the proposed Glenwood Springs Field Office (GSFO) Fire Management Plan (FMP). The approved GSFO FMP will amend the Glenwood Springs Resource Area (GSRA) Resource Management Plan (RMP) of 1984 (Revised 1988). FMPs define a strategy for managing and prioritizing wildland fire and prescribing vegetation treatments for fuel hazard reduction and resource benefit.

The major procedural change under the proposed GSFO FMP is that BLM managers would have the option of managing wildland fires for resource benefit under particular situations in specific geographical areas. Current management and lack of an approved FMP does not allow the use of wildland fire for resource benefit. Thus all wildland fires have been suppressed. As a result, fire managers have not allowed beneficial wildland fires to burn naturally in areas where fires are desired.

The environmental assessment (EA) examines wildland fire management and prescribed vegetation treatments as described in the proposed GSFO FMP. The EA serves as the analysis for implementing the FMP. The FMP/EA also serves as a programmatic analysis for “fuel hazard reduction” vegetation treatments and vegetation treatments to benefit resources. This will give general direction to guide vegetation treatments and help coordinate vegetation treatments where possible. A future site-specific document that complies with the National Environmental Policy Act will be written for each prescribed vegetation treatment, incorporating this document by reference. Prescribed vegetation treatments may also be derived from research, monitoring, assessments and other plans.

Public lands will be managed under one of four fire management zones (FMZs) for the purposes of wildland fire and prescribed vegetation management (see FMP). The descriptions of FMZs are based on Bureau of Land Management Instruction Memorandum No. 2002-034 (11/15/2001) and Clarification of Fire Management Categories and RMP-Level Decisions; and H-1601-1 - Land Use Planning Handbook (Appendix C; Part I. Subpart J. Page 9).

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### **“A” FMZs    *Areas where fire is not desired at all.***

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*General description:* This category includes areas where mitigation and suppression is required to prevent direct threats to life or property. It includes areas where; fire never played a large role historically in the development and maintenance of the ecosystem, or because of human development fire can no longer be tolerated without significant loss, or where fire return intervals are very long.

*Fire Mitigation Considerations:* Emphasis should be focused on prevention, detection, and rapid suppression response and techniques that will reduce unwanted ignitions and threats to life, property, natural and cultural resources.

*Fire suppression considerations:* Virtually all wildland fires would be actively suppressed and no fire is prescribed except as required to combat an immediate threat to firefighter or public health and safety.

*Fuel treatment considerations:* Non-fire fuel treatments employed. Unit costs for prescribed fire would be too prohibitive to implement efficiently. Pile burning of mechanically removed vegetation is acceptable.



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**"B" FMZs      *Areas where unplanned wildland fire is not desired because of current conditions***

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*General Description:* Fire plays a natural role in the function of the ecosystem, however these are areas where an unplanned ignition could have negative effects unless/until some form of mitigation takes place. Sagebrush ecosystems, for example, can fall into this category because of encroachment of cheatgrass or a prolonged lack of fire which leads to large monotypic stands of sagebrush that won't burn as they would have historically.

*Fire Mitigation Considerations:* Emphasize prevention/mitigation programs that reduce unplanned ignitions and threats to life, property, natural and cultural resources.

*Fire suppression/use considerations:* Fire suppression is usually aggressive.

*Fuel treatment considerations:* Fuel hazard reduction as a major means of mitigation potential risks and associated loss are a priority. Fire and non-fire fuels treatments are utilized to reduce the hazardous effects of unplanned wildland fire. Restorative treatments may consist of multiple non-fire treatments before the use of fire will be considered. Unit costs for prescribed fire are high and require stringent mitigation and contingencies. Try to concurrently achieve fire protection and resource benefits, when possible.

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**"C" FMZs      *Areas where wildland fire is desired, but there are significant constraints that must be considered for its use.***

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*General Description:* Fire is a desirable component of the ecosystem, however, ecological, social or political constraints must be considered. These constraints could include air quality, threatened and endangered species considerations (effect of fire on survival of species), or wildlife habitat considerations.

*Fire Mitigation Considerations:* Programs should mitigate potential threats to values before ignitions occur and reduce unwanted human ignitions.

*Fire suppression/use considerations:* Ecological and resource constraints along with human health and safety, etc., are utilized in determining the appropriate suppression response on a case by case basis by the incident commander and sub-unit line officer. Areas in this category would generally receive lower suppression priority in multiple wildland fire situations than would areas in "A" or "B" FMZs.

*Fuel treatment considerations:* Fire and non-fire fuels treatments may be utilized to ensure constraints are met or to reduce any hazardous effects of unplanned wildland fire. Significant prescriptive fire activity would be expected to help attain desirable resource/ecological conditions. Prescribed fire for hazard/fuel reduction are of a lower priority than in "B" zones. Prescribed fire unit costs are low to moderate and are generally non-complex. Try to concurrently achieve fire protection and resource benefits, when possible.

**“D” FMZs     *Areas where wildland fire is desired, and there are few or no constraints for its use.***

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*General Description:* Areas where unplanned and planned wildland fire may be used to achieve desired objectives such as to improve vegetation, wildlife habitat or watershed conditions.

*Fire Mitigation Considerations:* Implement programs that reduce unwanted human-caused ignitions, as needed.

*Fire suppression/use considerations:* These areas offer the greatest opportunity to take advantage of the full range of options available for managing wildland fire under the appropriate management response. Health and safety constraints will apply. Resource use considerations similar to those described for Category C may be identified if needed to achieve resource objectives. Areas in this category would be the lowest suppression priority in a multiple fire situation.

*Fuel treatment considerations:* There is generally less need for hazard fuel treatment in this category. Prescribed fire for fuel hazard reduction is not a priority except where there is an immediate threat to public health and safety. If treatment is necessary, both fire and non-fire treatments may be utilized, as allowed by the land use plan. Prescribed fire to obtain desired resource/ecological condition is appropriate.

Table 1 - Management Zones Overview

		Wildland Fire Management			Vegetation Treatments	
		Suppression Priority	Suppression Strategy	Wildland Fire Use *	Prescribed Fire	Mechanical/ Chemical/Hand Biological/
<b>A FMZ</b>	Fire not desired at all.	High	Aggressive suppression	No	<b>No</b> , except pile burning of mechanically removed vegetation.	<b>Yes</b> , fuel hazard reduction to mitigate risks a priority.
<b>B FMZ</b>	Unplanned wildland fire not desired.	High	Aggressive suppression	No	<b>Yes</b> , fuel hazard reduction to mitigate risks a priority.	<b>Yes</b> , fuel hazard reduction to mitigate risks a priority.
<b>C FMZ</b>	Wildland fire desired - must consider significant constraints.	Moderate	Appropriate suppression responses	No	<b>Yes</b> , fuel hazard reduction lower priority than "A or B" FMZs; used to attain desirable resource conditions.	<b>Yes</b> , fuel hazard reduction lower priority than "A or B" FMZs; used to attain desirable resource conditions.
<b>D FMZ</b>	Wildland fire desired - fewer constraints.	Low	Appropriate suppression responses	Yes, under prescribed conditions	<b>Yes</b> , used to attain desirable resource conditions; fuel hazard reduction is lower priority than "C" FMZs.	<b>Yes</b> , used to attain desirable resource conditions; fuel hazard reduction is lower priority than "C" FMZs.

*\* Wildland Fire Use (WFU) is the management of wildland fires to accomplish specific pre-stated resource management goals in predefined geographic areas.*

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## INTRODUCTION

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### **NEED FOR PROPOSED ACTION:**

The fire management plan (FMP) is needed to comply with the 2001 Federal Wildland Fire Management Policy (2001 Federal Fire Policy), Bureau of Land Management Instruction Memorandum (IM) No. 2002-034 (11/15/2001) and Clarification of Fire Management Categories and RMP-Level Decisions. The Policy and IM directs BLM Field Offices to have an approved FMP for every area with burnable vegetation. FMPs define a strategy for managing and prioritizing wildland fire; and prescribing vegetation treatments for fuel hazard reduction and resource benefit.

Current initial attack of unplanned ignitions follows BLM Initial Attack Policy Clarification (April 1995) which states;

*“Consistent with approved suppression activity constraints, all new wildfires will receive aggressive initial attack with adequate forces to contain the fire prior to the start of the next burning season.”*

Until a FMP is approved, the BLM has to take aggressive suppression action on all wildland fires, taking into account firefighter and public safety and resources to be protected. Although resource impacts of suppression alternatives must always be considered in selecting a fire management strategy, resource benefits could not be the primary consideration.

Without an approved FMP, the GSFO has no defined strategy for;

1. managing and prioritizing wildland fire suppression,
2. prescribing vegetation treatments for fuel hazard reduction and resource benefit,
3. utilizing wildland fires to accomplish land use and resource management objectives.

Immediate suppression seems the logical choice for fire managers. However, there are situations where a wildland fire may benefit resources or be more cost efficient to manage differently. The proposed action would allow fire managers the latitude to consider;

1. Human safety,
2. Protection of improvements, property, cultural resources, threatened or endangered species, and high value resources,
3. Return fire to its natural role in the ecosystem.
4. Enhancement of natural resources that can benefit from the careful application of fire,
5. Hazardous fuel reduction, and
6. Fiscal efficiency of fire management operations.

In addition, land uses, land issues and vegetation (fuels) have changed since the completion of the 1988 Resource Management Plan (RMP), especially in the private land - public land interface. The GSFO FMP needs to reflect wildland fire and vegetation management in light of those changes.

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**RELATIONSHIP TO STATUTES, REGULATIONS, OR OTHER PLANS:**

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**PLAN CONFORMANCE REVIEW:**

The proposed action is subject to and has been reviewed for conformance with the GSFO Resource Management Plan of 1984 (Revised 1988) including amendments (43 CFR 1610.5, BLM 1617.3). Amendments include: Oil and Gas Leasing and Development on 11/91 and 3/99, Standards & Guidelines for Public Land Health on 3/97, Castle Peak RMP amendment on 8/97, and the Red Hill RMP amendment on 1/99.

The FMP was completed to comply with the 2001 Federal Wildland Fire Management Policy (2001 Federal Fire Policy). This Environmental Assessment tiers to the Federal Wildland Fire Management Policy and Program Review (December 1995) and the Wildland and Prescribed Fire Management Policy: Implementation Procedures and Reference Guidelines (August 1998) and tiers to the Vegetation Treatment on BLM Lands in Thirteen Western States Final Environmental Impact Statement (BLM 1991). Public lands in the planning area are subject to federal statutes and regulations including: the 1976 Federal Land Policy and Management Act (FLPMA), the Endangered Species Act of 1973, as amended, the 1969 National Environmental Policy Act (NEPA), and the National Historic Preservation Act of 1966, as amended. The objectives outlined in this FMP are in conformance with these federal regulations.

To protect wilderness characteristics (roadlessness and naturalness) in Wilderness Study Areas (WSAs), wildland fire and vegetation management follows H-8550-1 - Interim Management Policy for Lands Under Wilderness Review. To prevent irreversible and irretrievable impacts to certain BLM public lands, wildland fire management follows BLM - IM-CO-97-044 - Policy for the Management of Lands Described in the CEC's Wilderness Proposal for BLM Lands.

Fire management activities on public lands must also meet the state standards for air and water quality. Activities must be conducted in accordance with the current State of Colorado Smoke Management Plan and MOU and have an approved open burning permit issued by the Colorado Department of Public Health and Environment, Air Pollution Control Division.

Fire management strategies were developed following careful consideration of program specific resource management guidance.

**FUNDAMENTALS & STANDARDS FOR PUBLIC LAND HEALTH:**

On February 12, 1997, the *Colorado Standards for Public Land Health* became effective for all BLM lands in Colorado. Standards describe the conditions needed to sustain public land health and apply to all uses of public lands. The Glenwood Springs Field Office is in the ongoing process of conducting Land Health Assessments to determine whether or not the standards are being achieved. These assessments are done on a landscape basis and are scheduled to occur over an 11 year period. At this time, three landscapes addressed in this EA have had formal Land Health Assessments completed. Based on the findings of these assessments, the authorized officer shall take appropriate action to achieve conformance with the standards or implement further mitigating measures on future actions to maintain or prevent a further decline in land health.



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## PROPOSED ACTION AND ALTERNATIVES

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### **PROPOSED ACTION:**

DESCRIPTION: Implementation of the proposed GSFO FMP (see Appendix A for GSFO FMZ map).

MITIGATION MEASURES: See FMP for suppression recommendations restrictions and guidelines by fire management zone (FMP Part 16).

### **ALTERNATIVE A (CONTINUATION OF CURRENT MANAGEMENT):**

DESCRIPTION: Initial attack of unplanned ignitions would continue to follow BLM Initial Attack Policy Clarification (April 1995) which states; "Consistent with approved suppression activity constraints, all new wildfires will receive aggressive initial attack with adequate forces to contain the fire prior to the start of the next burning season." Under this alternative, as dictated by agency policy, all wildland fires must be immediately suppressed in accordance with the Appropriate Management Response Guidelines.

Under this alternative, wildland fires would be managed under the concept that fire is not desired at all on public lands. Land use and resource management objectives would receive little consideration in wildland fire management strategies. Wildland fires would not be used as a management tool to accomplish land use and resource management objectives. Comprehensive prescriptive vegetation treatment guidance as described in the proposed action would not be utilized.

MITIGATION MEASURES: The Grand Junction District - Appropriate Suppression Response Fire Suppression Strategy Policy would be followed.

### **ALTERNATIVES CONSIDERED BUT ELIMINATED:**

DESCRIPTION: Allowing wildland fires to burn, i.e. "let burn", with no fire management response.

No fire management response would likely lead to unnecessary loss of life, property, and resources. Therefore, this alternative was eliminated from further consideration.

## COMPARISON OF ALTERNATIVES

	Proposed Action	Alternative A "Continuation of current management"
<b>Wildland Fire Management-Suppression Strategy</b>	Varied suppression responses by fire management zone	No, Wildland fires will not be allowed to burn without the appropriate suppression action.
<b>Wildland Fire Management-Wildland Fire Use strategy *</b>	Yes, Naturally occurring fires under prescribed conditions in "D" FMZs would be used to achieve responsible and definable land use benefits and resource management objectives.	No, Wildland fires would not be used to achieve responsible and definable land use benefits and resource management objectives.
<b>Vegetation Treatments-Prescribed Fire</b>	Yes, except for "A" FMZs	Yes
<b>Vegetation Treatments-Mechanical/Chemical Treatments</b>	Yes	Yes
<b>Hazardous Fuels Reductions</b>	Yes Prescribed burning and other fuel management guidance addresses the issue and opportunities for hazardous fuels reductions, especially near interface areas.	No The issue and opportunities for hazardous fuels reductions, especially near interface areas, are not addressed.
<b>Land Use and Resource Management Objectives Considered</b>	Land use and resource management objectives receive higher and upfront consideration.	Land use and resource management objectives receive less consideration.
<b>Complies with Federal Wildland Fire Management Policy (December 1995 and the January 2001 Amendment and Update)</b>	Yes	No
<b>Improves Management Efficiency in the Use of Prescribed Fire and in Suppression of wildland fires.</b>	Considerations to improved management efficiency in the use of prescribed fire and in suppression of wildland fires.	Does not address improved management efficiency in the use of prescribed fire and in suppression of wildland fires.

\* Wildland Fire Use (WFU) is the intentional use of naturally occurring fires for resource benefit.

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## AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES / MITIGATION MEASURES

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*\* Because wildland fire suppression actions are considered emergency actions, under the Comprehensive Environmental Response, Compensation, Liability and Recovery Act (CERCLA), only limited environmental review will be made of suppression techniques and activities in this analysis.*

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### SETTING

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The Bureau of Land Management (BLM) Glenwood Springs Field Office (GSFO) has fire protection responsibility on more than 567,000 acres of public land in Eagle, Garfield, Pitkin, Routt, Mesa and Rio Blanco Counties in Colorado. See FMP Part 16 for setting description by fire management zone.

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### CRITICAL ELEMENT - AIR QUALITY

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#### AIR QUALITY - Affected Environment:

Glenwood Spring Field Office (GSFO) area is located in the Western Slope Air Quality Region 11 and 12 of the Colorado Air Pollution Control Division. The area lies primarily within Garfield, Eagle, Pitkin, Routt Counties with a smaller part in Mesa County. Three Class I air quality areas are adjacent to public land in GSFO, the Flat Tops, Eagles Nest, and the Maroon Bells-Snowmass Wilderness Areas. All three areas are administered by the U. S. Forest Service Region II. Several additional areas on public land are under study and may be added to the wilderness system in the future. It is anticipated that additions of BLM lands to the wilderness system would not require any new restrictions to protect air quality.

The City of Aspen lies in the southeast portion of the planning area. Aspen is a non-attainment area for PM 10 (particulate matter less than 10 microns in diameter). Land-use practices within or adjacent to this non-attainment area are closely scrutinized by local and state regulatory agencies to ensure that violations do not occur. The highest levels have always occurred in late winter. In those months, an entire winter of sand and dirt on the roads has been ground up by vehicle tires. High traffic levels, especially trucks and buses, grind and re-grind this dirt into smaller particles that are then lifted into the air as PM-10. When a warm, dry spell occurs in the late winter (especially if it coincides with times of high-traffic volumes such as President's Weekend) very high PM-10 levels are recorded. PM-10 levels are highest in winter and lowest in spring and fall, when there is less traffic. PM-10 levels dropped in the mid-1990's when control measures were implemented by the City of Aspen and Pitkin County (2001 Annual Air Quality Report for the City of Aspen at website: <http://www.aspengov.com/ehnew/city/pdf/2001airrpt.pdf>).

Wildland fires and prescribed fires are a potentially consequential source of air pollutant emissions because fire is a natural combustion process that releases air pollutants. The amount of emissions depends on the size and intensity of the fire, which are determined by meteorological conditions, such as temperatures and wind speed and direction; the fuel type and moisture content, such as age classes, sizes and mixture of vegetation types; and the available fuel loading, or mass of available combustible material (which is typically reported in tons of fuel per acre).

Dry fuels (such as dead and down or dry vegetation) are consumed first in the beginning stages of burning. As a fire progresses, green/live vegetation is dried through heat convection and is consumed as well. Under extreme conditions, this process may initiate a chain reaction that results in a widespread, uncontrolled wildland fires. Fuels burned under extreme conditions would normally emit more air pollutants than the same amount of fuels burned under controlled conditions.

The most effective means of controlling air pollutant emissions from wildland fires is to inhibit large, catastrophic fires by using smaller natural and prescribed fires to reduce hazardous fuel loadings. Any managed fire, either a natural wildland fire that is managed for resource benefit or a prescribed fire, must be continually monitored to insure that burning conditions remain within a previously determined prescription of controlled fire and smoke behavior. Therefore when properly executed, these managed fires are expected to cause fewer air quality impacts both in the short term and in the long term.

For one, managed fires are typically smaller than uncontrolled wildland fires and involve less combustion, since they can only be used when the fuel type and fuel loading meet managed parameters for control and under weather conditions that enhance efficient fuel consumption and air pollution dispersion. In addition, once a mosaic of small fires have broken up fuels in an area, it minimizes the risk of an uncontrolled wildland fire which, in turn, reduces the risk of impacts to air quality.

### **AIR QUALITY - Environmental Consequences & Mitigation:**

Under both the proposed action and Alternative A (Continuation of Current Fire Management) all fire activity will be conducted in accordance with existing laws that protect air quality. Specifically, all fire activity must comply with the applicable air quality regulations required by FLPMA and the Clean Air Act. The GSFO area currently passes all applicable air quality standards. All prescribed fire will be conducted in accordance with the State of Colorado Smoke Management Plan and MOU, and will be regulated under Colorado Department of Public Health and Environment, Air Pollution Control Division, approved open burning permits, which must be issued in advance of the fire. Simple Approach Smoke Estimation Model (SASEM, 1988) air pollutant dispersion predictions will be conducted for all prescribed burn plans and will be reviewed by the State.

#### **Proposed Action:**

In the short term, implementation of the proposed action may initially increase the amount of prescribed fire in an effort to reduce fuel loading which in turn may initially increase the amount of smoke emissions. Since prescribed fire is conducted when weather, fire intensity and fire size is within preestablished parameters, the amount of air pollutant emissions is limited.

Air quality in the planning unit would be positively impacted over the long term if managed under the Proposed Action. The cumulative impact of this new management approach will reduce fuel loads and lower the risk, number, and size of large, catastrophic fires in the Field Office area.

The proposed FMP Part 5 - Air Quality and Smoke Management contains examples of techniques and procedures that will be used to minimize smoke and air quality impacts (seeing, smelling, breathing). Smoke and emission management techniques and procedures are detailed in the Prescribed Fire Smoke Management Guide, published by the National Wildfire Coordinating Group (NFES No. 1279, PMS 420-1; 1985).

#### **Alternative A:**

Continuing the practice of suppressing essentially all wildland fires could provide some short-term benefit to air quality by eliminating even temporary smoke production as quickly as possible. However, preventing periodic fires in the ecosystem has already resulted in unacceptable fuel loadings in certain parts of the planning area, which has increased the risk of larger, more intense wildland fires burning for longer periods. These uncontrolled wildland fires typically cause greater air pollutant emission levels and occur under unfavorable smoke dispersion conditions. Thus, they ultimately result in more extreme and widespread air quality impacts. Therefore, this alternative would eventually increase air quality and visibility impacts from smoke, and is likely to cause more widespread respiratory problems.

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## **CRITICAL ELEMENT - CULTURAL RESOURCES**

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### **CULTURAL RESOURCES - Affected Environment:**

Evidence exists for human occupation in the GSFO along the Colorado River drainage basin and mountains from Paleoindian through Historic periods, a time span of more than 12,000 years. The region may not have been extensively or intensively occupied during all time periods, since aboriginal populations fluctuate principally in response to changing environmental conditions. However, the area was never abandoned by aboriginal peoples until 1882, when the Ute tribes were removed from the area to reservations. Despite the fluctuations in populations and usage of any one area, the aboriginal inhabitants of the GSFO, have generally pursued an archaic subsistence pattern consisting of broad spectrum hunting and gathering and seasonal transhumance. No sedentary horticultural subsistence habitation sites have been identified in the area. However, based upon diagnostic artifact assemblages, it is presumed that these Formative groups, such as the Fremont, were at least hunting in the area, as well as trading with the local inhabitants. In general radiocarbon dates indicate a general increase in occupation/frequency from about 7000 B.C. until around 800 A.D. Four periods of possible higher frequency of occupation occurred at about 5100 B.C., 3800 B.C., 2000 B.C., and A.D. 800.

Historic Euro-American occupation began in the late 1800s and was generally well established by the early 1900s. Sheep and cattle operations dominated the early Anglo use of the area along with minor mining operations, logging, and the railroads. These types of utilization continues today but, is rapidly being replaced by increasing recreational activities and urbanization associated with the I-70 transportation corridor, ski areas, rafting, hiking/bicycling trails, and motor vehicular uses.

Although there are many historic and prehistoric properties throughout the GSFO, the nature of development (i.e., ground disturbances related to public land use activities) has allowed only specific areas to be adequately inventoried and these are relatively small, resulting in insufficient data to make any sweeping inferences. However, similar topographic areas can be compared and the expected data extrapolated from areas with sufficient cultural data to areas with little or no known cultural data. These inventories represent project driven federal actions for which compliance is required under the National Historic Preservation Act and the 106 process

About 4% of the GSFO or about 23,242 acres have been inventoried at a Class III level. During these inventories about 2348 cultural properties have been identified, the majority of which are on BLM administrated lands. Of the 2348 sites a total of 241, or slightly more than 10%, are considered eligible or potentially eligible for listing on the National Register of Historic Places (NRHP). Thirty-five properties are listed on the NRHP, the majority are historic structures within or adjacent to towns, within the FMP Category A. Cultural properties which could be potentially affected by fire include: any structure composed of tree limbs, logs, or lumber whether historic or prehistoric; rock art; rock shelters; open prehistoric camps; historic bridges; transportation devices.

### **CULTURAL RESOURCES - Environmental Consequences & Mitigation:**

Allowing wildland fires to burn may put increased numbers of resources at risk for loss than might otherwise be threatened by more aggressive fire suppression. Fast moving low intensity wildland fires may cause structures to be impacted or destroyed; surface artifacts to be discolored or show signs of heat crazing; and subsurface remains, if any will not be substantially effected. Rehabilitating burned areas, control lines, and suppression equipment trails may cause additional displacement and breakage of surface artifacts. Limiting off road travel and mechanized line construction greatly reduces impacts to surface artifacts and features.

Cultural resources that are particularly subject to fire damage include:

Historic sites with standing, or down wooden structures or other flammable features



- Prehistoric sites with flammable architectural elements and other flammable features (i.e., wickiups, platform trees, game traps, cabins, and homesteads)
- Prehistoric artifact scatters located in potentially unstable geomorphological settings
- Historic and prehistoric sites with the potential for hearths and datable charcoal or other fire sensitive deposits
- Aspen tree art
- Traditional cultural properties and sacred sites
- Rock shelters and Rock art sites (heat causes rock spalls)
- Cultural landscapes and Historic districts
- Peeled trees (specifically in Ponderosa pine forests)

Cultural resources that are of lower risk to fire damage include:

- Prehistoric and historic sites with deeply buried cultural deposits
- Prehistoric and historic sites with non-flammable surface features, i.e. cement foundations or open lithic scatters
- Historic earthworks
- Sites officially determined to be No Eligible for listing on the National Register of Historic Places

### **Proposed Action:**

Heritage resources in the GSFO will likely be impacted by the proposed action due to the increase in acres burned yearly. However, these impacts can be greatly reduced to cultural properties by: limiting off road travel and mechanized line construction; identifying known resources with highest values at risk (i.e., wickiups, traps, cabins, and homesteads) and protecting them with fuel breaks and hazardous fuel reductions where feasible; protecting all known resources to the extent possible without compromising fire fighter safety; inventorying fire line construction in sensitive area whenever possible; avoid placing control line, base camps, and support facilities within site boundaries; inventorying all ground disturbing rehabilitation activities and use non-ground disturbing techniques within known and newly identified site boundaries; and utilizing resource advisors on large wildland fires. Areas with a high potential for unknown cultural sites and significant cultural properties have been identified and management strategies have been written into the plan to protect these resources.

All fire activities within the GSFO will be conducted in accordance with existing laws which provide for the protection of prehistoric and historic heritage resources under both the Proposed Action and the Alternative A (No Action). Specifically, all fire management activities will continue to be guided by any National Historic Preservation Act National Programmatic Agreement and the Colorado Protocol between the BLM and State Historic Preservation Officer, Advisory Council of Historic Preservation, and Forest Service.

All wildland fires within Category A will be suppressed to the fullest extent possible with no prescribed burns, unless public or firefighter safety is under immediate threat. Therefore, there is a very limited potential for cultural property damage. All heritage sites will be protected under this category.

Under Category B, known heritage sites and values will be managed and protected by full suppression of wildland fires. Additional suppression constraints have been identified in the FMP for these areas or sites, specifying that fire lines will be placed at a sufficient distance so as not to visibly affect the setting, integrity, or sub-surface cultural deposits.

Areas designated as Category C, which have a high potential for unknown standing structures, rock art, or rock shelters, will require some measure of protection. Although known sites and potential areas are identified on the planning and cultural maps, many other areas may include fragile standing resources, and rock or aspen art. Wildland fires will require that the resource advisor be aware of potential cultural properties and have contacted the field archaeologist to help develop a response strategy where heritage resources are threatened. Discovered heritage resources that have wooden

structures, of any kind, should be upgraded to a Category B status, and the fire suppressed, as wildland fires can cause irreparable damage to these resources.

Additionally all prescribed burns, mechanical, or chemical treatments will, regardless of the Category, require a cultural resource inventory prior to initiating the treatment. Individual, project specific requirements for protection of heritage resources will also be developed for each EA.

Although the FMP will slightly increase the potential for impact to cultural resources, due to the increased use of managed fires, this alternative will provide the greatest management flexibility in using fire to achieve resource and landscape objectives in a timely fashion. Therefore, the cumulative impact will be positive overall by reducing fuel loads and lowering the risk of large catastrophic wildland fires which could result in permanent damage or the destruction of the heritage resources.

#### **Alternative A:**

Under the no action alternative, aggressive fire suppression would continue to limit the overall threat to heritage resources from fire, but sites would continue to be impacted by wildland fires. Hazardous fuel build up would continue to occur, increasing the likelihood of large catastrophic wildland fires that would pose greater threats to the resource. Sites would be under slightly greater threat from control line construction and off road use of suppression equipment. However, some impacts would be long term and irretrievable. One long term negative impact of this alternative to cultural resources will be from the increased risk of large, catastrophic wildland fires. There will be also be secondary effects from increased potential for erosion due to the loss of ground cover and vegetative overstory, which protect the resource values. Even though protection of the resources is a priority by law, areas of concern have not been properly identified and mitigation measures have not been written into the FMP for the protection of cultural properties.

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### **CRITICAL ELEMENT - NATIVE AMERICAN RELIGIOUS CONCERNS**

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#### **NATIVE AMERICAN RELIGIOUS CONCERNS - Affected Environment:**

Additionally, this area of Colorado was once part of the Ute tribe homeland and as such there are sites, places, and objects that have heritage value beyond their historical value. There are also sacred sites, places, and objects that have religious or traditional value to the Native American tribes. These areas/objects involve tribal beliefs and behaviors, generally transmitted across generation, that are necessary to perpetuate tribal cultures. Traditional values generally, involve cultural practices so interrelated with religious activities that they are not totally separable from subsistence, family life, or other cultural features. These properties/objects must also be protected based upon Federal laws such as the Archaeological and Historic Preservation Act, Native American Graves Repatriation Act, and Native American Religious Freedom Act.

The types of sites/artifacts with religious or traditional cultural properties potentially affected by fire include: wicki-ups and other brush structures; eagle traps; corrals; tree platforms; peeled or scared trees; hunting blinds; drying racks; game drives and traps; rock and tree art; and special plant or mineral gathering areas.

Even though areas with a high potential for these resources have been identified on the FMP, there is always the chance for additional unknown cultural properties. This is particularly true in pinyon-juniper forests near a water source, near caves, cliffs, or on expansive view areas. Ponderosa pine forests are also potential areas for scared or peeled trees as are aspen forests for tree art.

## **NATIVE AMERICAN RELIGIOUS CONCERNS - Environmental Consequences & Mitigation:**

### **Proposed Action:**

Same as for Cultural Resources.

### **Alternative A:**

Same as for Cultural Resources.

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## **CRITICAL ELEMENT - FLOODPLAINS, WETLANDS, RIPARIAN ZONES, AND ALLUVIAL VALLEYS**

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### **FLOODPLAINS, WETLANDS, RIPARIAN ZONES, AND ALLUVIAL VALLEYS - Affected Environment:**

There is approximately 350 miles of perennial, ephemeral, and intermittent streams that support riparian vegetation in the Glenwood Springs Resource Area. Including springs and seeps, it is estimated that there is 19,000 acres of riparian vegetation on public lands within the Resource Area.

### **FLOODPLAINS, WETLANDS, RIPARIAN ZONES, AND ALLUVIAL VALLEYS - Environmental Consequences & Mitigation:**

#### **Proposed Action:**

This analysis will focus on the impacts to riparian areas in the C and D zones since these are the only areas that allow varied wildland fire suppression responses that may effect riparian areas. Since wildland fires will be aggressively suppressed in A and B zones, impacts to riparian areas within these zones will be similar to those discussed under Alternative A. Restrictions and fire rehabilitation actions are designed to minimize or eliminate impacts to riparian vegetation and will be addressed in site-specific environmental analysis for vegetation treatments. Therefore, except where specific treatments are designed to control or manage vegetation within riparian areas, adverse impacts to riparian zones are expected to be minimal. For these reasons, impacts to riparian zones from vegetation treatments will not be discussed in this impact analysis. EO 11990 (Protection of Wetlands) and EO 11988 (Floodplain Management) pertain to construction activities and therefore is not applicable to this proposed action.

Wildland fire suppression strategy in the C and D zones is expected to have minimal direct impact to riparian vegetation. Riparian areas are unlikely to burn as a result of natural ignition because of their position on the landscape and due to the high live fuel moisture content that riparian vegetation typically has. In the remote chance that riparian vegetation does burn, these are typically resilient systems and would be expected to recover rapidly (within one growing season) after the fire. The return to the vegetation condition that existed prior to disturbance would vary considerably depending upon the riparian vegetation type. For example, riparian vegetation that consisted of mature cottonwood trees could take hundreds of years before conditions returned to what existed prior to fire. Willow communities could take five to 10 years, and riparian grass/forb communities would take one to two years. Again, the chance of riparian vegetation burning to any consequential degree is remote.

Since more upland area vegetation should burn on a typical year in the C and D zones, indirect impacts to riparian vegetation could result. There might be short-term, localized increases in runoff and sedimentation into the stream channels and riparian zones. In the long-term, positive impacts to riparian areas should result. In most burn areas, percent ground cover of vegetation will be greater than what existed prior to the burn. This would result in an increase in water infiltration, a

corresponding reduction in erosive runoff within watersheds, and a reduction of within- channel erosion. In addition, as the woody vegetation in many areas is reduced, there will likely be an increase in the duration and the amount of stream flow and the quantity of associated riparian vegetation, particularly in intermittent and ephemeral streams. Finally, as fuel continuity is reduced overall as a result of the FMP, it will reduce the likelihood of catastrophic wildland fires, which could cause damage to riparian systems by destroying the vegetation and causing sedimentation in channels.

**Alternative A:**

Under current fire management policy, direct impacts to riparian vegetation and wetlands will be minor since fire occurrence within these areas is infrequent. Over the long-term , fuels and fuel continuity will continue to increase which will increase the chance of catastrophic fire. Catastrophic fire has the potential to cause consequential damage to riparian zones and channel morphology. In addition, as woody vegetation increasing dominates the landscape, the flow in some streams may be further reduced which would reduce the vigor and amount of associated riparian vegetation.

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**CRITICAL ELEMENT - PRIME AND UNIQUE FARMLANDS**

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**PRIME AND UNIQUE FARMLANDS - Affected Environment:**

Prime Farmland is land that has the best combination of physical and chemical characteristics, for producing food, feed fiber and oilseed crops and is also available for these uses. Unique Farmland is land other than Prime Farmland that is used for the production of specific high value food and fiber crops. The Natural Resource Conservation Service (NRCS) has the responsibility for designating lands as Prime or Unique Farmlands.

**PRIME AND UNIQUE FARMLANDS - Environmental Consequences & Mitigation:**

No land within the GSFO area has been designated as Prime and/or Unique Farmland and therefore there would be no impacts from implementation of either alternative on Prime and Unique Farmlands within the field office area. It is also anticipated that high intensity precipitation events on recently burned watersheds would not result in debris flows and sediments loads large enough to affect Prime and Unique Farmlands downstream.

**Proposed Action:**

No affect.

**Alternative A:**

No affect.

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**CRITICAL ELEMENT - FEDERALLY THREATENED, ENDANGERED AND CANDIDATE SPECIES**

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**FEDERALLY THREATENED, ENDANGERED AND CANDIDATE SPECIES - Affected Environment:**

Complete inventories for threatened and endangered species have not been conducted in the GSFO planning area. However, the following table lists federally listed, proposed, and candidate species either known or suspected to occur, or with potential to occur, or habitat located within the boundaries of the GSFO. Each of these species is addressed with regard to the fire plan (also see USF&WS Concurrence Letter in Appendix B).

Black-footed ferret - *Mustela nigripes* (Endangered)  
Southwestern willow flycatcher - *Empidonax traillii extimus* (Endangered)  
Big River Fishes:  
Razorback sucker - *Xyrauchen texanus* (Endangered - Critical Habitat)  
Bonytail chub - *Gila elegans* (Endangered - Critical Habitat)  
Colorado pikeminnow - *Ptychocheilus lucius* (Endangered - Critical Habitat)  
Humpback chub - *Gila cypha* (Endangered - Critical Habitat)  
Bald eagle - *Haliaeetus leucocephalus* (Threatened)  
Canada lynx - *Lynx canadensis* (Threatened)  
Uinta Basin hookless cactus - *Sclerocactus glaucus* (Threatened)  
Boreal toad - *Bufo boreas boreas* (Candidate)  
Gunnison sage grouse - *Centrocercus minimus* (Candidate)  
Western yellow-billed cuckoo - *Coccyzus americanus* (Candidate)  
Parachute penstemon - *Penstemon debilis* (Candidate)  
DeBeque phacelia - *Phacelia scopulina* var. *submutica* (Candidate)

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### **Black-footed ferret**

Black-footed ferrets historically occurred throughout much of the western United States where large colonies of prairie dog towns were present. This species was likely never common within the planning area due to the lack of suitable habitat. No black-footed ferrets have not been documented as occurring within the planning area. Prairie dog surveys conducted by the CDOW in 1988 resulted in the identification of 6 prairie dog colonies within the planning area. Historic data and records indicated that 12 prairie dog colonies may have existed within the planning area boundary. The largest known site is approximately 150-acres of mostly private land located near I-70 at DeBeque, CO. Five smaller towns all approximately 20-acres in size are located north of Rifle, north of Gypsum on private lands, east of the Eagle airport on private lands, and south of the Eagle airport on BLM lands. The only known ferret population in the state is a recently reintroduced population located in Moffat County. The USFWS has determined that, at a minimum, potential habitat for black-footed ferrets must include a single white-tailed prairie dog colony of greater than 200 acres, or a complex of smaller colonies within a 4.3 mile (7km) radius circle totaling 200 acres (USFWS 1989). None of the prairie dog colonies within the planning area are of a size or prairie dog density sufficient to sustain black-footed ferrets.

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### **Southwestern willow flycatcher**

The southwestern willow flycatcher is a migratory species that breeds in the southwestern U.S. Suitable nesting habitat for this species is described as thickets of trees and shrubs approximately 13-23 feet in height, with dense foliage approximately 13 feet above the ground, and a high percentage of canopy cover. Generally all nesting southwestern willow flycatchers prefer willows with surface water nearby. This species is also known to nest in salt cedar.

Southwestern willow flycatchers have not been confirmed to nest on public lands located within the GSFO planning area. A few incidental occurrences have been noted within the GSFO planning area along the Colorado River mainly on private lands. Suitable but unoccupied habitat has been identified on BLM land on a small portion of Wallace Creek south of the town of Battlement Mesa. Surveys of Wallace Creek for this species have been conducted and to date, no birds have been detected. The potential for occupation is limited due to the distance of Wallace Creek from other potentially suitable habitat located over 5 miles away along small, scattered portions of the Colorado River.

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### **Big River Fishes (Colorado pikeminnow, razorback sucker, bonytail chub, humpback chub)**



Within the planning area, the Big River Fishes historically occurred within the Colorado River from the town of Rifle downstream. These fishes require a diversity of habitats within the Colorado River, particularly during certain life stages. Low velocity side channels, backwaters, oxbows, sloughs, and flooded bottom lands are all important habitats for both young and adult fish. The Colorado River, and its 100-year floodplain from the town of Rifle downstream is designated critical habitat for the razorback sucker and Colorado pikeminnow. Critical habitat for the bonytail and humpback chub is located in the Blackrocks area of the Colorado River near the Colorado-Utah state line.

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### **Bald eagle**

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Bald eagles are known to winter along portions of the Colorado River and its major tributaries within the planning area. Results of past CDOW mid winter bald eagle counts and limited surveys have resulted in the detection of no active nests on BLM lands within the planning area boundary (Gene Byrne - CDOW pers. comm.).

Wintering bald eagles are generally present within the planning area from mid-November to mid-April. Large mature cottonwood trees along the Colorado and Eagle rivers and their major tributaries are used as roosting and perching sites and these waterways provide the main food sources of fish and waterfowl. Upland habitats adjacent to these waterways are used as scavenging areas primarily for winter killed mule deer and elk.

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### **Canada lynx**

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Within the planning area, potential lynx habitat is associated mainly with lodgepole pine, subalpine fir, Engelmann and blue spruce, and aspen cover types. Potential lynx habitat is found in the subalpine and upper montane forest zone, roughly between 8,000 and 11,300 feet elevation within the planning area. Lower montane forests are likely to be important for movement and dispersal.

The majority of potential lynx habitat within the planning area is of marginal quality with the best habitats abutting the White River and Routt National Forests. Winter foraging, and denning habitat for lynx includes subalpine fir, lodgepole pine, and Engelmann and blue spruce cover types with abundant prey species/and or dense woody debris. Conifer-aspen forests with dense regeneration or with an extensive shrub and woody debris understory may be important for snowshoe hare or other prey species (Lynx Biology Team 2000). Extensive stands of pure aspen with shrub and grass understory species may provide some summer foraging habitat but are generally poor as winter foraging areas unless intermixed with spruce-fir or young lodgepole pine stands.

Regenerating burns are often quite productive for prey species due to the mixed deciduous/conifer forests, multiple age classes, shrub layer, dense herbaceous layer, and extensive downed woody debris. High elevation sagebrush communities found in the planning area and in proximity to subalpine and upper montane forests may be important foraging areas for lynx due to high prey abundance (Squires and Laurion 2000). Other habitats that may be important for foraging include large and medium willow carrs, beaver pond complexes, and shrub dominated riparian communities (Lynx Biology Team 2000).

The common component of den sites appears to be large woody debris, either downed logs or root wads (Koehler 1990, Mowat et al. 2000, Squires and Laurion 2000). Stand structure appears to be more important than forest cover type (Mowat et al. 2000). Denning habitat in the planning area is limited and exists where dense late-successional spruce-fir forests persist with substantial amounts of large woody debris, primarily on north aspects.

Habitat of sufficient size to sustain lynx is not found on BLM lands within the planning area. As such, no exclusive BLM LAU's exist. At this time, the majority of mapped potential lynx habitat on BLM lands within the planning area will be incorporated into jointly defined and managed BLM/USFS LAU's. Other habitats

that will be considered include those lands that fall within identified potential habitat linkages.

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#### **Uinta Basin hookless cactus**

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The Uinta Basin hookless cactus occurs in western Colorado and eastern Utah on gravelly alluvial terraces, rocky hills and mesa slopes at elevations ranging from 4,500 to 6,000 feet. In the GSFO planning area, the cactus is found between DeBeque and Parachute in salt desert shrub habitats dominated by shadscale, sagebrush, greasewood and galleta grass. Some sites have heavy concentrations of cheatgrass which creates a fire hazard.

Fire historically played a minor role in the habitats that support the Uinta Basin hookless cactus due to the topographic position of the habitat at lower elevations which received few lightning strikes and the paucity of fuels to carry a fire. However, the spread of cheatgrass into these communities has increased the fire probability of some areas. Where cheatgrass is present, it generally increases in dominance following fire and may inhibit regeneration of cactus.

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#### **Boreal toad**

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Boreal toads range from approximately 7,500 ft. in elevation to over 12,000 feet. In Colorado, this species generally occupies springs, streams, ponds, bogs, wet meadows, and lakes in foothill woodlands, mountain meadows, and moist subalpine forests. Although some potential habitat for this species exists within the planning area boundary, limited surveys conducted by BLM/CDOW biologist in 1994 resulted in the detection of no boreal toads.

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#### **Gunnison sage grouse**

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The Gunnison sage grouse is a recently delineated species of grouse that is currently known to reside in portions of southwestern Colorado and Southeastern Utah. This species may occupy potential habitat within sagebrush stands located south of the Eagle River. However, this species has not been documented as occurring within the planning area. This species is a sagebrush obligate that requires a diverse age-class of sagebrush, as well as open grassland habitats with a diverse forb component. Much of the potential habitat for this species south of the Eagle river in FMZ B-140-05 has been impacted due to private land development near the towns of Eagle and Gypsum. This has resulted in direct habitat loss, and habitat fragmentation. In addition, aggressive fire suppression and historic grazing have reduced the quality of habitats located on BLM lands in this area.

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#### **Yellow-billed cuckoo**

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This species habitat consists of riparian cottonwood-willow galleries. This species historically occurred in portions of western Colorado, although this species was likely never common, and no individuals have been recorded or confirmed to nest on public lands located within the planning area.

This species evolved with fire and fire historically maintained the vegetative communities important for this species. Due to many years of fire suppression, habitats for this species have been reduced in quantity and quality. Many sagebrush stands are old and decadent with a poor herbaceous understory, and others have been invaded by tree species.

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#### **Parachute penstemon**

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Parachute penstemon is known to occur in only five locations and all are within the GSFO. The penstemon is limited to sparsely vegetated, steep, shale talus slopes of the Parachute Creek member of the Green River Formation at elevations ranging from 8,000 to 9,000 feet. Fire probably never played an

important role in the ecology of this species because the habitats where it is found do not contain enough vegetation to carry a fire.

### **De Beque phacelia**

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The DeBeque phacelia is an annual plant endemic to Garfield and Mesa Counties in Colorado. The plant grows on sparsely vegetated, steep slopes of chocolate-brown or gray clays in the Wasatch Formation at elevations between 4,700 and 6,200 feet. Fire is rare to nonexistent in this community type due to the sparse vegetation which cannot carry a fire.

At this time, there are only two documented populations of DeBeque phacelia in the GSFO planning area, and both are north of the Garfield County landfill. Additional potential habitat occurs in the foothills south and east of DeBeque.

### **FEDERALLY THREATENED, ENDANGERED AND CANDIDATE SPECIES - Environmental Consequences & Mitigation:** (see Attachment A for USF&WS Concurrence Letter)

#### **Proposed Action:**

Under the Proposed Action, the majority of the threatened, endangered, and candidate species with potential to reside in the planning area will be positively impacted in the long term. Habitat changes resulting from the increased use of wildland use fire and vegetative treatments will be compatible with the long term health of the land and will benefit species inhabiting these lands. The increased use of natural fire will help to restore fire's natural role in fire dependant ecosystems and will help to return vegetative communities to a more normal fire regime. The use of fire and vegetative treatments to reduce hazardous fuels, will meaningfully reduce the potential for larger catastrophic fire events.

The majority of the species found within the planning area evolved with fire, and fire historically played an important role in maintaining habitats important for most of these species. Therefore, potential impacts to T & E species is not directly related to wildland fires, but to the discretionary action of suppressing wildland fires. It is the action of suppressing wildland fires and the methods employed to do so that could result in impacts. Other impacts could occur as a result of the implementation of vegetative treatment projects. However, all vegetation treatments will be designed to benefit T & E species in the long term following guidance found in local and national conservation plans. Up front minimization measures will be a part of any vegetative treatment project.

In recognition of potential impacts to T&E species, Section 7 Consultation was initiated regarding the FMP. Each of the species listed below were addressed in a Biological Assessment (BA) submitted to the U.S. Fish & Wildlife Service on March 20, 2002. The U.S. Fish & Wildlife Service concurred with our determination that the implementation of the FMP **"May affect, but is not likely to adversely to affect 14 Threatened, Endangered, and Candidate species"** in a letter dated April 2002.

### **Black-footed ferret**

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Overall, the implementation of the FMP should result in long-term benefits to this species. Fire and vegetative treatments may help to improve and create habitat important for this species. Many of the desert shrub and grassland habitats located within the planning area have been invaded by woody species due to years of aggressive fire suppression. Fire and vegetative treatments within these habitats may help to reduce woody species and produce and maintain more grassland habitats. This could result in expansion of suitable habitat for prairie dogs and possibly black-footed ferrets.

#### Direct Effects

Implementation of the FMP should have no direct adverse impacts to this species. No black-footed

ferrets are known to reside on BLM lands within the planning area, and no prairie dog colonies of sufficient size and density exist within the planning area.

#### Indirect Effects

Fire and vegetative treatments could potentially have some indirect effects to black-footed ferrets. Impacts could occur to prey species (prairie dogs) if conducted within occupied prairie dog habitat. Impacts would be short-term, affecting the availability of some herbaceous food sources for prey species for a short time. However, underground roots would likely sustain prairie dogs until such time as grasses and forbs reestablish. Suppression activities could result in some short-term negative effects due to the potential use of heavy equipment and fire line construction in prairie dog habitat.

#### Determination of Effects

It is very unlikely that black-footed ferrets occur within the planning area. Prairie dog surveys conducted by the CDOW in 1988 resulted in the identification of 6 prairie dog colonies within the planning area. The largest known site is approximately 150-acres of mostly private land located near I-70 at DeBeque, CO. Five smaller towns all approximately 20-acres in size are located north of Rifle, north of Gypsum on private lands, east of the Eagle airport on private lands, and south of the Eagle airport on BLM lands. No historic records could be found pertaining to the existence of black-footed ferrets within the planning area, and the only known ferret population in the state is a recently reintroduced population located in Moffat County. Although some indirect impacts could result from fire and suppression related activities to prairie dogs the ferrets main prey, due to a lack of suitable habitat and limited prey base, the implementation of the FMP is not anticipated to have any negative effects on this species. However, with limited survey information, it would be difficult to say definitively that no black footed ferrets reside in the planning area. **Therefore, it is the determination that the proposed implementation of the FMP “may effect, but is not likely to adversely effect the black-footed ferret”.**

### **Southwestern willow flycatcher**

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Implementation of the FMP should have minimal long-term or direct impacts to this species. No willow flycatchers are known to nest on BLM lands within the planning area. Suitable habitat is limited to a small portion of Wallace Creek, and surveys have not detected the presence of any birds.

#### Direct Effects

There is the possibility that vegetative treatments, and suppression actions could directly impact this species. The use of fire retardant, and noise from heavy equipment in close proximity to occupied habitats (should occupation ever occur) could have short-term, direct impacts to nesting birds and could lower nesting success and productivity.

#### Indirect Effects

Fire, associated suppression activities, and vegetative treatments should have little indirect effect to this species. There is the possibility that smoke and noise from wildland fires and related suppression activities could indirectly impact nesting birds. This could result in nest abandonment and reduce productivity.

In order to minimize potential impacts, both direct and indirect, to this species, the following minimization measures will be followed:

- Conduct surveys prior to any vegetative treatments within potential or suitable habitat.
- Where surveys detect birds, do not implement vegetative treatments between May 1 and August 15.
- Avoid aerial application of retardant or foam within 300 feet of any body of water including lakes, rivers, streams and ponds whether or not they contain aquatic life.

\*Exceptions (as per Instruction Memorandum No. OF&A 2000-011);

*When alternative line construction tactics are not available due to terrain constraints, life and property concerns or lack of ground personnel, it is acceptable to anchor the foam or retardant application to the waterway. When anchoring a retardant or foam line to a waterway, use the most accurate method of delivery in order to minimize placement of retardant or foam in the waterway (e.g., a helicopter rather than an airtanker).*

*When life or property is threatened and the use of retardant or foam can be reasonably expected to alleviate the threat.*

*When potential damage to natural resources outweighs possible loss of aquatic life, the FM or acting FM may approve retardant or foam use within 300 feet of waterways.*

#### Determination of Effects

There is the possibility that direct disturbance could occur via smoke, noise, and human presence should nesting ever occur within suitable habitats located in the planning area. However, the mandatory minimization measures will reduce adverse impacts to suitable and potential flycatcher habitat. **Therefore, it is the determination that the proposed implementation of the FMP with the mandatory minimization measures “may affect but is not likely to adversely affect the southwestern willow flycatcher”.**

#### Big River Fish (Colorado pikeminnow, razorback sucker, bonytail chub, humpback chub)

Overall, the Big River Fishes should benefit from the implementation of the FMP. As upland habitats burn or are treated, improved vegetative cover should result which will help to stabilize soils and minimize erosion and sediment impacts. The implementation of the proposed action will also reduce the threat of larger catastrophic fire by reducing hazardous fuels within the Colorado River drainage. These fish all evolved and are well adapted to the historically high sediment loads that the Colorado River carried. Erosion within the Colorado River basin has always played a factor in the maintenance of habitats important to these fishes. In addition, it is important to note that studies have shown that large wildland fires are important to maintain and provide long-term stream habitat complexity that can benefit instream biodiversity and threatened and endangered species habitat (Everest et al. 1987. Reeves et al. 1995).

#### Direct Effects

Direct effects from fire and vegetative treatments should be minimal on these fishes. However, there is the possibility that the use of fire retardant directly adjacent to or within tributaries, or the mainstem of the Colorado River could result in direct negative impacts.

Fire retardant when mixed with water and exposed to UV radiation, breaks down to form hydrogen cyanide (HCN), which is extremely toxic to aquatic life. In addition, Ammonia (NH<sub>3</sub>), which is highly soluble will result when retardant is placed into water. When ammonia dissolves in water a chemical equilibrium is maintained between ammonia, which is toxic, and ionized ammonia (NH<sub>4</sub><sup>+</sup>) which is less toxic. The chemical balance between these two forms of ammonia is determined by pH, temperature, and total ammonia concentration. In most streams, the pH is sufficiently low and NH<sub>4</sub><sup>+</sup> predominates. However, in highly alkaline waters, NH<sub>3</sub> concentrations increase and can reach toxic levels. Ammonia in the range of 0.2 to 2.0 mg/L can be lethal to fishes. The toxicity of retardant to aquatic life is generally due to these two components (free cyanide and ammonia).

No direct negative effects from fire retardant are anticipated to occur to either the bonytail or humpback chub, since occupied habitat is located over 70 river miles downstream from the western boundary of the GSFO planning area. Even if retardant was to enter the river at the western edge of the planning area boundary its effects would be negated prior to reaching occupied/critical habitat. Harmful chemicals would have ample time to mix with the large volume of river water and would be diluted to

non-toxic levels.

Other factors resulting from wildland fires include the potential for large, acute influxes of heated slag and ash which can have both immediate and direct impacts to fishes. This is due mainly to elevated water temperatures to lethal limits. Water quality may also become impaired as changes in pH can negatively impact fishes. In addition, fish can be negatively affected due to increased phosphate levels as phosphate is leached from ash. There would be no impacts associated with these potential events on the bonytail or humpback chub. Heated slag and ash resulting from fires within the planning area boundary, would quickly be diluted with large volumes of river water prior to reaching occupied/critical habitat.

#### Indirect Effects

Indirect effects to this fish would be minimal and short-term. There is the potential for erosion due to losses of soil stabilizing vegetation on upland sites adjacent to tributaries or the mainstem. Erosive areas located on BLM lands within the planning area have been identified and management prescriptions reflect consideration of the effects of large fires in critical watershed areas. Loss of upland vegetation could result in increases in surface water runoff and subsequent higher peak flows. Suppression efforts could also result in some short-term impacts, including the construction of fire lines which could subsequently increase erosion potential. However, these fish are well adapted to the high silt load conditions of the Colorado River. Potential increases in sediment resulting from the implementation of the FMP would have negligible effects to these fishes or designated critical habitats, and could be beneficial in limiting productivity of non-native fishes that are not adapted to high silt conditions.

The U.S. Fish and Wildlife Service (USFWS) has determined that any Federal action that will deplete water in the basin will prompt a "May Affect" Jeopardy determination under Section 7 of the Endangered Species Act. Thus the use of water to assist in the suppression of wildland fires will be considered. It has been estimated that no more than 1-acre foot of water would be used during any given year for fire suppression activities occurring within the planning area. However, all water depletions regarding fire suppression activities will be summed up and added to the yearly log submitted to the USFWS. This action is covered by the amendment to the programmatic biological opinion (March 2, 2000) that addresses minor water depletions within the Colorado River basin in western Colorado.

To reduce potentially negative effects, both direct and indirect, the following minimization measures will be followed:

- Avoid aerial application of retardant or foam within 300 feet of any body of water including lakes, rivers, streams and ponds whether or not they contain aquatic life. (See exceptions under southwest willow flycatcher).
- Within the Colorado River drainage and associated tributaries located in FMZ B-140-02 and C-140-01, minimize the erosion of sediments into the Colorado River by:
  - minimizing vegetation losses,
  - coordinating fire line placement with the resource advisor or hydrologists.
  - constructing fire lines in a manner that limits the potential for erosion,
  - rehabilitating constructed hand/dozer lines/impacted areas in critical watershed areas and placing water bars where erosion potential is high (see FMP Part 12).
- Vegetation treatments conducted on uplands adjacent to the Colorado River will be designed and conducted in a manner that limits potential for soil erosion and sedimentation and increases vegetative ground cover. This includes riparian restoration work, and salt cedar removal, intended to improve habitats.

\* *Depletion log:* The GSFO Biologist will report 1-acre foot of water to be added yearly to the water depletion log to account for water depletions associated with fire abatement within the planning area. If, in the event of a large wildland fire or severe fire season more water is used, the log will be adjusted

accordingly and all depletions accounted for.

#### Determination of Effects

The implementation of the FMP with the mitigation measures noted above, should reduce impacts to insignificant, discountable levels. However, the potential for negative impacts associated with wildland fires will still exist. It has already been determined that any actions resulting in a depletion of water result in a "May Effect" determination for all 4 fishes. **Therefore, it is the determination that although the proposed mitigation measures will essentially eliminate negative effects, implementation of the GSFO FMP "may affect, likely to adversely affect" the Big River Fishes.** In addition, the proposed action **"may result in short-term adverse modification of critical habitat designated for these fishes."** Although determined to be a "may affect", the water depletion issue will be covered via the amended programmatic biological opinion (March 2, 2000) that addresses minor water depletions within the Colorado River basin in western Colorado.

If during a severe fire event that threatens life or property, the minimization measures outlined above can not be adhered to, then these fishes could be adversely affected. Potential impacts include but are not limited to: large influxes of ash, sediment, and in particular fire retardant. In the event this situation occurs, Emergency Consultation will be promptly initiated, and adverse impacts documented and mitigated for to the extent practicable.

#### **Bald eagles**

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Overall, effects both direct and indirect, should be minimal on this species. Fire and vegetative treatments both generally occur outside of the winter occupation period for bald eagles (November 15 to April 16).

#### Direct Effects

No direct effects are anticipated to this species. Bald eagles occupy habitat within the planning area from mid-November to late April. This is the timing of occupation of winter habitat. Fire does not generally occur during this time period. However, if wildland fire was to occur during the wintering period, impacts associated with the fire and related suppression activities would be minimal. Individual birds would be displaced to other suitable roosting sites along river and stream corridors.

#### Indirect Effects

There is the potential for short-term and indirect impacts associated with vegetative treatments and wildland fire. Human activity may cause auditory or visual disturbance to foraging or wintering bald eagles. These impacts would be short-term and localized and will not effect the overall distribution of the species. Wildland fires within winter roost habitat could indirectly impact bald eagles by reducing the quantity and quality winter roost habitat. In addition, a short-term reduction in fish species, the bald eagles main food source, could result due to wildland fire and related suppression activities. Impacts to fishes are addressed under the Big River Fishes above. This could reduce food resources for a short time. Impacts to nesting bald eagles is not anticipated as no bald eagles are currently known to nest on public lands within the planning area.

The following minimization measures will reduce, both direct and indirect impacts, to potential nesting bald eagles:

- Avoid vegetative treatments, within ½ mile of known bald eagle nest sites between December 15 and June 15.
- Avoid unnecessary tree cutting within ¼ mile of known roost trees.
- Avoid aerial application of retardant or foam within 300 feet of any body of water including lakes, rivers, streams and ponds whether or not they contain aquatic life. (See exception under Southwest willow flycatcher).

To reduce indirect effects to bald eagles from potential modification of winter roost sites, the following minimization measures are required:

- Avoid vegetative treatments, within ¼ mile of known roost trees from Nov 16 to April 15.
- Avoid aerial application of retardant or foam within 300 feet of any body of water including lakes, rivers, streams and ponds whether or not they contain aquatic life. (See exception under Southwest willow flycatcher).

#### Determination of Effects

No direct effects are anticipated to occur to this species. However, there is the potential for indirect/short-term impacts. Treatments may disturb foraging birds and could potentially impact and disturb some winter roost habitat. Wildland fires and related suppression activities could reduce the quantity and quality of winter roost habitat, and could result in short-term losses of fish, the eagles main winter forage species. The mandatory minimization measures should adequately reduce negative impacts. **Therefore, it is the determination that the proposed implementation of the FMP with the mandatory minimization measures “may affect, but is not likely to adversely affect the bald eagle or its habitat”.**

#### Canada lynx

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Fire and vegetative treatments will benefit lynx in the long-term. The use of these tools to reduce hazardous fuels will help to minimize the potential for large catastrophic fires, and will help to maintain and improve the diversity of habitats important for lynx and lynx prey species. A lack of natural fire has reduced the quality and abundance of lynx and snowshoe hare habitat across its range.

#### **Proposed Actions Relative Effects to Lynx Productivity Risk Factors**

Productivity is defined here as the ability of lynx to sustain and reproduce.

##### Direct Effects - Timber Management

From a FMP standpoint, the direct effects of timber management on lynx becomes an issue only if prescriptive logging treatments are used to accomplish vegetation goals. Vegetative treatments could displace lynx from established home ranges and result in lower productivity. These factors would be most critical during the denning period when kittens are present. Reductions in canopy cover could reduce denning, and security cover, until the tree species regenerate. This time lag could be significant. However, created openings in dense timber stands could result in improved snowshoe hare and other prey species habitat. This could increase winter foraging opportunities for lynx. Post-fire salvage timber operations that remove large woody debris could reduce potential denning habitat. Post-fire salvage logging decisions will be made on a site-specific basis through a separate environmental analysis and consultation. Thus, the implementation of the FMP will have little direct effect on lynx with regard to timber management.

Overall, the implementation of the FMP will have little direct effect to lynx with regard to timber management. The majority of effects will be indirect. However, there is the potential that wildland fires and vegetative treatments within forested habitats could directly effect lynx. Fire could result in the direct mortality of lynx. Vegetative treatments could displace lynx from established home ranges and result in lower productivity. These factors would be most critical during the denning period when kittens are present.

##### Indirect Effects - Timber Management

Roads, if determined necessary to initiate timber projects, could result in indirect effects. Roads could result in temporary travel corridors for competing species and could result in competition for food or direct mortality. In addition, roads could fragment habitats and if left open for use by the public, could result in further impacts including the potential displacement of animals to less suitable habitats.



#### Direct Effects - Wildland Fire Management

The Implementation of the FMP does not direct wildland fire activities per se, as wildland fire is a natural act. However, in designated "D" zones, some wildland fire use fires may be allowed to burn and will be managed under certain conditions in order to achieve resource benefits.

Fire suppression activities could directly impact lynx and lynx habitat. The potential construction of mechanical fire line within lynx habitat, and the use of heavy equipment, could reduce and fragment habitat, open areas up to competitive species, and displace animals from established home ranges.

#### Indirect Effects - Wildland Fire Management

Suppression related activities associated with attempts to control and put out wildland fires may indirectly effect lynx productivity. The construction of mechanical fire lines, could allow for access into lynx habitat by competing species, and by the recreating public. This could reduce the quality and usability of denning, summer, and winter foraging habitats.

#### Direct Effects - Recreation

There would be no direct impacts to lynx from the implementation of the FMP with regard to recreation. This is not to say that recreation activities may not have direct impacts to lynx, rather that the FMP does not regulate or authorize recreational uses or activities.

#### Indirect Effects - Recreation

Fire lines, roads, and other "trails" associated with wildland fire suppression or vegetative treatments could result in indirect effects to lynx. If left open and not rehabilitated, firelines and roads could become recreational trails used by the public. This could allow access of people into lynx habitat where there would otherwise be limited access. This could cause displacement of animals into more unsuitable or marginal habitats and could limit overall productivity.

#### Direct Effects - Forest/Backcountry Roads and Trails

Implementation of the FMP would have no direct effect to lynx productivity factors with regard to forest/backcountry roads and trails. This is not to say that roads and trails, for recreation or gas production, may not have an impact, rather that the FMP does not regulate or authorize road and trail construction.

Although not authorized as roads or trails, the construction of linear openings (fire line, access routes and escape routes), for wildland fire suppression or vegetative treatments could have a direct impact to lynx by removing vegetative cover and reducing canopy cover and potential denning habitat.

#### Indirect Effects - Forest/Backcountry Roads and Trails

Although not authorized as roads or trails, the construction of linear openings (fire line, access routes and escape routes), for wildland fire suppression or vegetative treatments could create indirect impacts. These linear openings could be used by competing species which could compete for prey, or result in direct mortality.

If left open and not rehabilitated, linear openings could facilitate recreational use and become a trail or road which could further displace animals, and render foraging and denning habitats less useful. These factors could reduce overall productivity of the species.

#### Direct Effects - Livestock Grazing

Implementation of the FMP would have no direct effect to lynx productivity factors with regard to livestock grazing. This is not to say that grazing may not have an impact, rather that the FMP does not regulate or authorize grazing and grazing as an action is not specifically addressed in this plan.

#### Indirect Effects - Livestock Grazing

Wildland fires and vegetative treatments could result in the temporary, short-term loss of forage for lynx prey species. Livestock grazing could exacerbate the situation by limiting post fire/treatment

reestablishment of key forage species. This could result in declines in lynx prey densities, thus lowering the overall productivity of lynx.

### **Proposed Actions Relative Effects to Lynx Mortality Factors**

#### Direct Effects - Competition and Predation as Influenced by Human Activities

Implementation of the FMP should have little direct effect regarding competition and predation as influenced by human activity.

#### Indirect Effects - Competition and Predation as Influenced by Human Activities

Wildland fires and vegetative treatments could have indirect effects to lynx with regard to competition and predation as influenced by human activities. Human occupation of habitats during fire suppression activities could cause displacement of individual animals. Mechanical fire lines and roads associated with fire suppression and vegetative treatment could increase competition by allowing access into lynx habitat by competing species such as coyote, mountain lion, and bobcat. These animals could compete for resources and could directly cause mortality to lynx.

### **Proposed Actions Relative Effects to Lynx Movement Risk Factors**

#### Direct Effects - Lynx Movement and Dispersal Across Shrub-Steppe Habitats

Implementation of the FMP should have minimal long-term direct affect on lynx's ability to move and disperse across shrub-steppe habitats. However, in the short-term impacts could occur. Losses of vegetation could reduce cover for movement and reduce prey densities for a short time.

#### Indirect Effects - Lynx Movement and Dispersal Across Shrub-Steppe Habitats

Wildland fire and vegetative treatments could reduce the usability of shrub-steppe habitats on a short-term basis. These treatments could result in a short-term reduction in available forage for snowshoe hare and other prey species. In addition, vegetative cover would be reduced potentially limiting lynx's ability to move through portions of the landscape.

### **Identified Habitat Linkages**

Currently, four habitat linkages have been identified within the GSFO. These habitat linkages are comprised of public, private, and state land located between larger forested landscapes. A variety of vegetative communities make up these linkages including shrub-steppe, pinyon- juniper, Doug-fir, aspen, oakbrush, and riparian. Portions of these linkages contain habitat (summer forage, winter forage, and denning habitat) necessary to support and sustain lynx. The remainder and majority of lands within the linkage areas do not contain lynx habitat. These areas provide habitat that provides cover for movement and dispersal. The primary function of these dispersal corridors is to connect important forested landscapes containing vital habitats. These larger forested areas occur primarily on the White River, and Routt National Forests in north-central, Colorado.

Overall, the implementation of the FMP should help to improve habitat conditions within the habitat linkages. Wildland fires and vegetative treatments will reduce hazardous fuels and reduce the risk for large catastrophic wildland fires while increasing and improving vegetative ground cover and maximizing foraging opportunities.

Within designated "D" zones, there is the potential to let vegetation burn within mapped habitat linkages. However, lynx landscape linkages will be considered along with numerous other resource values and concerns, during a "let burn" scenario. These linkages will be managed in a manner that maintains, improves, and/or enhances the long-term functionality of the linkage regardless of the "zone" in which the linkage resides, while allowing fire to play a more natural ecosystem role. Subsequent landscape linkage management planning will set more specific direction as to the management of individual linkages and will better guide the use of fire within these landscapes.

The "D" designation would allow fires to burn and take a more natural course only under certain

conditions/prescriptions. If conditions are such that prompt suppression could not be done in a “D” zone, then all fires would be aggressively attacked. The “D” zone designation is more for when multiple fire starts occur across several zones and initial attack strategies are planned. “D” zones would have the lowest suppression priority in a multiple fire scenario. Under extreme fire conditions it is likely that all fires would be suppressed regardless of the zone. Therefore, it is not anticipated that any “let burn” scenario would significantly reduce or impair any habitat linkage. Fire size under certain prescriptive conditions is anticipated to be relatively small. As with all wildlife fires, if such an event occurs within a habitat linkage Emergency Consultation will be promptly initiated and effects documented and mitigated to the extent practicable.

#### Direct Effects - Identified Habitat Linkages

The implementation of the FMP should have minimal long-term direct impacts to lynx regarding their ability to move through the landscape. There is the possibility that in the short-term vegetative cover will be reduced and cover and foraging habitat lost until regeneration occurs.

#### Indirect Effects - Identified Habitat Linkages

Lynx could be indirectly affected due to decreased cover and foraging habitat. This could displace lynx from more suitable movement corridors to less desirable areas. This could decrease the chances of successful dispersal across the landscape.

To reduce effects, both direct and indirect, to lynx from wildland fire suppression activities and the implementation of vegetative treatments, the following mandatory mitigation measures will be followed within identified lynx habitat:

- Attempts will be made to keep linear openings (fire line, access routes and escape routes) out of mapped potential habitat, while attempting to protect key components such as denning areas.
- Avoid constructing permanent firebreaks on ridges or saddles in lynx habitat.
- When managing wildland fire or planning vegetation treatments, minimize the creation of linear openings (fire line, access routes and escape routes) that could result in permanent travel ways for competitors and humans.
- Linear openings (fire line, access routes and escape routes) associated with fire suppression or vegetative treatments constructed within lynx habitat will be obliterated and reclaimed in order to deter future human and competitive species use.
- All vegetation treatments will be planned in a manner consistent with the goals and objectives outlined in the *Canada Lynx Conservation Assessment and Strategy* (2000). Planning of treatments will ensure that no more than 30% of lynx habitat within an Lynx Analysis Unit will be in unsuitable condition at any time. If the 30% threshold is already exceeded then no further reduction shall occur as a result of vegetation management. In addition, particular consideration will be given to amounts of denning habitat, condition of summer foraging, winter foraging and shrub-steppe habitats, and habitat linkages, to ensure that treatments do not negatively impact lynx.

#### Post-fire / Post-treatment mitigation

- Livestock grazing may be deferred in openings created by wildland fires or vegetative treatments to ensure the reestablishment of key plant species. Resource goals and objectives will be used to determine the need for this restriction and the length of the deferment on a case by case basis.

#### Determination of Effects

The implementation of the FMP with the minimization measures noted above, should reduce impacts to insignificant, discountable levels. **Therefore, it is the determination that the implementation of the FMP with the proposed minimization measures “May Affect, but is Not Likely to Adversely Affect” the Canada Lynx.** However, if during a severe fire event that threatens life or property, these minimization measures can not be adhered to, then Canada lynx could be adversely affected. The potential construction of mechanical fire line within lynx habitat, and the use of heavy equipment,

could reduce and fragment habitat, open areas up to competitive species, and displace animals from established home ranges. All of these impacts would be short term. Lynx could be impacted indirectly through the construction of fire lines, which could increase competition and reduce habitat usability. In the event this situation occurs, Emergency Consultation will be promptly initiated, and adverse impacts documented and mitigated for to the extent practicable.

In addition, vegetative treatments within lynx habitat may have short term impacts due to time lags associated with regeneration of key species including lodgepole pine, aspen, fir and spruce. This could alter prey distribution and abundance, thus reducing winter and summer foraging opportunities, and reduce security and denning cover. The potential impacts associated with vegetative treatments will be covered at the project level through a site specific NEPA document and where appropriate.

### **Uinta-Basin hookless cactus**

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#### Direct Effects

The implementation of the FMP should result in minimal direct impacts to this species. The habitat for the cactus was incorporated into fire management zone "A-140-01" which means wildland fires will receive prompt suppression action commensurate with human safety.

Fire suppression activities could have adverse impacts to cactus populations. Fire line construction in cactus habitat may destroy individual cactus plants and render some habitat unsuitable.

Mechanical or chemical vegetation treatments could cause adverse impacts to the threatened cactus populations by crushing or poisoning individual plants. No vegetation treatments are currently planned for FMZ A-140-01 Mount Logan Foothills. Any vegetative treatments planned in the future will be designed to avoid known Uinta Basin hookless cactus populations.

#### Indirect Effects

In areas where cheatgrass is present or has the potential to invade, fire or other vegetative treatments could result in increases in cheatgrass which may inhibit germination and establishment of cactus seedlings. Uinta Basin hookless cactus plants often utilize shrubs as nurse plants to provide shade, moisture and protection from trampling. Vegetative treatments that remove the shrub overstory may have detrimental impacts to the survival and regeneration of the cactus plants. Conversely, vegetative treatments designed to minimize the potential for catastrophic fires will benefit the cactus population.

To reduce the direct and indirect effects to Uinta Basin hookless cactus from wildland fire suppression activities and vegetative treatments, the following mandatory mitigation measures will be followed within identified cactus habitat:

- Minimize surface disturbance by using retardant, water, engines/wet lines, etc in known habitat for this species.
- Where firefighter safety is not compromised, construct fire line outside the perimeter of known cactus populations.
- Avoid off-road use of motorized vehicles and mechanical equipment within known cactus populations.
- Vegetative treatments will avoid known cactus populations.
- Vegetative treatments will be designed to limit the spread of cheatgrass and enhance Uinta Basin hookless cactus habitat.

#### Determination of Effects

The implementation of the FMP with the minimization measures noted above, should reduce impacts to insignificant, discountable levels. **Therefore, it is the determination that the implementation of the FMP with the proposed minimization measures "May Affect, but is Not Likely to Adversely Affect" the Uinta Basin hookless cactus.** However, if during a severe fire event that threatens life

or property, these minimization measures can not be adhered to, then this species could be adversely affected. Fire line construction could destroy individual plants, and render some habitat ineffective to colonization. In addition, fire could result in increases in cheat grass, an invasive competitor. In the event this situation occurs, Emergency Consultation will be promptly initiated, and adverse impacts documented and mitigated for to the extent practicable.

### **Boreal toad**

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Overall, effects to this species should be minimal. There is limited habitat for boreal toads on BLM lands located within the planning area. Although not all aquatic systems within the elevational range of the species have been surveyed, BLM/CDOW cooperative surveys conducted in 1994 of suitable habitat resulted in the detection of no boreal toads.

#### Direct Effects

Wildland fires and related suppression actions can impact aquatic wildlife including boreal toads. In particular the use of fire retardant can result in immediate and direct impacts to boreal toads. Fire retardant when mixed with water and exposed to UV radiation, breaks down to form hydrogen cyanide (HCN), which is extremely toxic to aquatic life. In addition, Ammonia (NH<sub>3</sub>), which is highly soluble will result when retardant is placed into water. When ammonia dissolves in water a chemical equilibrium is maintained between ammonia, which is toxic, and ionized ammonia (NH<sub>4</sub><sup>+</sup>) which is less-toxic. The chemical balance between these 2 forms of ammonia is determined by pH, temperature, and total ammonia concentration. In most streams, the pH is sufficiently low and NH<sub>4</sub><sup>+</sup> predominates. However, in highly alkaline waters, NH<sub>3</sub> concentrations increase and can reach toxic levels. Ammonia in the range of 0.2 to 2.0 mg/L can be lethal to fishes. The toxicity of retardant to aquatic life is generally due to these two components (free cyanide and ammonia), and may be enhanced within closed aquatic environments such as ponds, lakes, and reservoirs that harbor this species.

Other factors resulting from wildland fires include the potential for large, acute influxes of heated slag and ash which can have both immediate and direct impacts. This is due mainly to elevated water temperatures to lethal limits. Water quality is also impaired as changes in pH and phosphate can result when leached from ash. The best potential boreal toad habitat located on BLM lands within the planning area is located within FMZ D-140-02. This "D" zone could allow wildland use fire which could potentially result in the above impacts.

#### Indirect Effects

Longer term impacts can result due to increases in runoff and higher peak flows, until adequate vegetation stabilizes soils and retains water. Other suppression efforts could also result in some short-term impacts, including the construction of fire lines which could increase erosion.

To reduce potential impacts, both direct and indirect, the following mitigation measures will be followed:

- Avoid aerial application of retardant or foam within 300 feet of any body of water including lakes, rivers, streams and ponds whether or not they contain aquatic life. (See exceptions southwest willow flycatcher).

#### Determination of Effects

The implementation of the FMP with the minimization measure noted above, should reduce impacts to insignificant, discountable levels. **Therefore, it is the determination that the implementation of the FMP with the proposed minimization measure "May Affect, but is Not Likely to Adversely Affect" the Boreal toad.** However, if during a severe fire event that threatens life or property, the minimization measure can not be adhered to, then this species could be adversely affected. Large influxes of ash, sediment, and fire retardant, into occupied habitats could negatively affect boreal

toads. In the event this situation occurs, Emergency Consultation will be promptly initiated, and adverse impacts documented and mitigated for to the extent practicable.

### **Western yellow-billed cuckoo**

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Implementation of the FMP should have minimal long-term or direct impacts to this species. No western yellow-billed cuckoo's are known to nest on BLM lands within the planning area. Suitable habitat may be present along small scattered portions of the Colorado River and suitably vegetated tributaries. However, no habitat has been defined for this species within the planning area.

#### Direct Effects

There is the possibility that vegetative treatments, and suppression actions could directly impact this species. The use of fire retardant, and noise from heavy equipment in close proximity to occupied habitats (should occupation ever occur) could have short-term, direct impacts to nesting birds and could impact nesting success and productivity.

#### Indirect Effects

Fire, associated suppression activities, and vegetative treatments should have little indirect effect to this species.

In order to minimize potential impacts, both direct and indirect, to this species, the following minimization measures will be followed:

- Avoid aerial application of retardant or foam within 300 feet of any body of water including lakes, rivers, streams and ponds whether or not they contain aquatic life. (See exceptions under southwest willow flycatcher).

#### Determination of Effects

The minimization measure will reduce adverse impacts to potential yellow-billed cuckoo habitat. No birds are known to nest within the planning area on BLM lands. There is the possibility that direct disturbance could occur via smoke, noise, and human presence should nesting ever occur within the planning area. **Therefore, it is the determination that the proposed implementation of the FMP with the minimization measures “may affect but is not likely to adversely affect the yellow-billed cuckoo”.**

### **Gunnison sage grouse**

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Sage grouse sign is occasionally noted south of the Eagle river, but no documented Gunnison sage grouse have been confirmed to reside within the planning area. Fire historically maintained habitats important to this species. The FMZ, B-140-05, recognizes that potential Gunnison sage grouse habitat exists within the FMZ. FMZ management goals include increasing the quantity and quality of sagebrush shrublands for sagebrush-dependent species. In the long-term, implementation of the FMP should protect and enhance potential Gunnison sage grouse habitat. With the implementation of prescriptive vegetation treatment guidance, the FMP could increase habitat suitable for the introduction or re-introduction of the species.

#### Direct Effects

Fire can directly impact nesting birds and young and can result in direct mortality of individuals. The use of heavy equipment, smoke, and human activity can effect birds, particularly during the nesting season. Fire line in sage grouse habitat can fragment habitat and result in losses of key vegetation. Treatments may reduce the abundance and quality of key habitats in the short-term and reduce foraging quality. However, treatments would likely be to the long-term benefit of the species as all treatments occurring within sage grouse habitat would be designed to improve the long-term condition

of sagebrush stands.

#### Indirect Effects

Vegetative treatments may indirectly effect sage grouse. Portions of sage grouse habitat could be reduced in quality and quantity, resulting in the use of less suitable habitats for a short time. This could effect sage grouse productivity. However, treatments would likely benefit sage grouse in the long-term as all treatments occurring within sage grouse habitat would be designed to improve the long-term condition of sagebrush stands.

Although not currently documented as residing within the planning area, the following minimization measures will apply and should reduce potential impacts, both direct and indirect, to all sage grouse species occurring within the planning boundary:

- Vegetative treatments will avoid known lek sites, and no activity will be allowed within 1/4 mile of active lek sites from March 15 to May 31.
- Aggressively suppress wildland fires in sagebrush vegetation within mapped sage grouse habitats to minimize expansive losses of sagebrush habitats.
- Identify and avoid known lek sites when managing wildland fire and using heavy equipment.
- In sage grouse winter habitats, protect unburned patches of sagebrush within the fire perimeter.
- Evaluate wildland fires to determine whether native reseeding is necessary, particularly within areas of known cheatgrass, to achieve habitat management objectives as recommended in the *Guidelines to manage sage grouse populations and their habitats* (Connelly, Schroeder, Sands and Braun 2000).
- Vegetation treatments within sage grouse habitats will be designed in accordance with recommended prescriptions found in the *Guidelines to manage sage grouse populations and their habitats* (Connelly, Schroeder, Sands and Braun 2000).
- Prior to development and implementation of vegetative treatments, and prescribed fires in particular, areas will be surveyed for the presence of cheatgrass to assist in determining size, method, and use of treatments.

#### Determination of Effects

Gunnison sage grouse have not been documented as occurring within the planning area, although sage grouse sign south of the Eagle and Colorado Rivers is still occasionally noted. The implementation of the FMP with the minimization measures noted above, should reduce impacts to insignificant, discountable levels. **Therefore, it is the determination that the implementation of the FMP with the proposed minimization measures “May Affect, but is Not Likely to Adversely Affect” the Gunnison sage grouse, should they occur within the planning area.** However, if during a severe fire event that threatens life or property, the minimization measure can not be adhered to, then this species or their habitat, could be adversely affected. Fire lines constructed in sage grouse habitat could result in fragmentation of habitat and result in losses of key vegetation. Treatments could have some short-term impacts associated with reduced habitat quality. In the event this situation occurs, Emergency Consultation will be promptly initiated, and adverse impacts documented and mitigated for to the extent practicable.

#### **Parachute penstemon**

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#### Direct Effects

The probability of a fire occurring in Parachute penstemon habitat is highly unlikely due to the sparse vegetation. Because of the sparse vegetation, there should be no need to construct a fire line or reduce hazardous fuels within the habitat. Most of the habitat occurs on steep slopes which would preclude vehicular traffic. Therefore, the impacts of fire suppression activities or vegetation treatments would be minimal.

#### Indirect Effects

In several places, Parachute penstemon is found within road cuts and fills. Widening of existing roads to improve access for fire suppression equipment and off-road vehicular travel has the potential to destroy individuals or populations of the Parachute penstemon.

To ensure full protection of the species and its habitat, the following minimization measures will be required:

- Minimize surface disturbance by using retardant, water, engines/wet lines, etc in known habitat for this species.
- Where firefighter safety is not compromised, avoid road widening or off-road use of motorized vehicles and mechanical equipment in occupied habitat.

#### Determination of Effects

The minimization measures will reduce adverse impacts to Parachute penstemon habitat. **Therefore, it is the determination that the proposed implementation of the FMP with the minimization measures “may affect but is not likely to adversely affect the Parachute penstemon”.**

### **DeBeque phacelia**

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#### Direct and Indirect Effects

The probability of a fire occurring in Debeque phacelia habitat is highly unlikely due to the sparse vegetation. Because of the sparse vegetation, there should be no need to construct a fire line or reduce hazardous fuels within the habitat. Most of the habitat occurs on steep slopes which would preclude vehicular traffic. Therefore, the impacts of fire suppression activities or vegetation treatments would be minimal.

The following minimization measures will be required for the protection of the two known populations and any populations discovered in the future:

- Minimize surface disturbance by using retardant, water, engines/wet lines, etc in known habitat for this species.
- Where firefighter safety is not compromised, avoid off-road use of motorized vehicles and mechanical equipment in occupied habitat.

#### Determination of Effects

The minimization measures will reduce adverse impacts to Debeque phacelia habitat. **Therefore, it is the determination that the proposed implementation of the FMP with the minimization measures “may affect but is not likely to adversely affect the Debeque phacelia”.**

#### **Alternative A:**

Short term impacts under this alternative would be similar to the Proposed Action within the A and B zones, where all wildland fires would be aggressively suppressed. Impacts would be similar regarding suppression related activities. However the mitigation under the Proposed Action would help to prevent and minimize potential short term impacts under this alternative as well.

Under this alternative, long term impacts would be cumulative and would negatively impact T & E species. The continued aggressive suppression of all wildland fires would further result in the build up of hazardous fuels. This will increase the potential for large catastrophic fire events that can have substantial impacts to T & E species and their habitats. In addition, fire would not reintroduced as a vital part of the natural environment and would not create mosaic patterns that reflect natural disturbance needed to maintain and enhance ecosystem health and habitat diversity.



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## **CRITICAL ELEMENT - BLM SENSITIVE SPECIES**

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### **BLM SENSITIVE SPECIES - Affected Environment**

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#### **Greater sage grouse**

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Sage grouse are a sagebrush obligate species that require a diverse age-class of sagebrush and open grassland habitats. Forbs are an important food source as are insects. This species has declined dramatically within the past 20 years within large portions of its historic range. This species was historically widespread in portions of the planning area within the larger sagebrush habitats. Current populations within the planning area are located north of Wolcott, Colorado on scattered BLM and private lands.

This species evolved with fire and fire historically maintained the vegetative communities important for this species. Due to many years of fire suppression, habitats for this species have been reduced in quantity and quality. Many sagebrush stands are old and decadent with a poor herbaceous understory, and others have been invaded and in many cases taken over by tree species. Development of private lands has significantly reduced and fragmented habitats important to this species.

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#### **Columbian sharp-tailed grouse**

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Columbian sharp-tailed grouse require a mixture of habitat types with mountain shrub, grassland, and riparian vegetation. Cultivated fields with alfalfa and wheat are important at certain times of the year as are aspen and small conifer stands with open grassy parks.

Although some limited potential habitat may exist within the GSFO, only one unconfirmed record exist for this species within the planning area. Portions of the GSFO are within the historic range of the species but populations are now limited to the extreme northwest portion of the state. Within the GSFO, mixed mountain shrub habitats are generally associated with steep rugged slopes with few open grassy areas. Thus important breeding habitat is the main limiting factor for this species in the planning area.

Wildland fire is an important component in creating and maintaining sharp-tailed grouse habitat. Fire helps to maintain early seral stages of grasses, forbs, and shrubs, all of which provide food and cover for sharp-tailed grouse. Fire can cause direct mortality of chicks and adults on nests.

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#### **Colorado River cutthroat trout**

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Colorado River cutthroat trout are the native trout of the upper Colorado River and were once common. Today populations are restricted mainly to small headwater streams and lakes. Several streams located on public lands within the planning area contain populations of Colorado River cutthroat trout. The most prominent being, Abrams Creek, Mitchell Creek, Northwater Creek, Trapper Creek, East Fork Parachute Creek, East Middle Fork Parachute Creek, and North Thompson Creek.

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#### **Northern goshawk**

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Northern goshawks preferred habitat consists of large conifer stands with relatively closed canopies. However, interspersed openings are also important for foraging. Several goshawks are located throughout the GSFO. This species evolved with fire, and it is likely that fire historically maintained important habitats components. Many years of fire suppression have left this species habitat susceptible to potentially large catastrophic fire events.

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**Bats (Fringed myotis, Yuma myotis, spotted bat, Townsend's big-eared bat, Mexican free-tailed)**

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Bats located within the planning area prefer natural caves, and abandoned mines for winter, summer, day, and maternal roost sites. These species typically forage on a variety of insects and may use a variety of habitats including pinyon-juniper woodlands, riparian areas, montane forests, and semi-desert shrublands. Fire does not directly effect and is not a component important to the maintenance of these species.

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**Barrow's goldeneye**

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This species of duck is an uncommon resident within the planning area on BLM lands. This species prefers wooded lakes and beaver ponds in the northwest U.S. Colorado is in the southern extreme of the range. Due to this species close association with water, fire does not play a considerable role in maintaining habitats important to this species.

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**White-faced ibis**

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This species prefers large freshwater or brackish marshes, and typically breeds in the northern states of Montana, Oregon, Idaho, and Minnesota. Very little habitat occurs within the planning area and species occurrence records are small. Due to a lack of preferred habitat, and this species close association with water, fire does not play a considerable role in maintaining habitats important to this species.

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**Flannelmouth sucker**

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This native fish species is found in the mainstem of the Colorado River generally below Glenwood Springs. Fire never played a consequential role in this species habitat and likely has little to no direct effect. Secondary effects could have impacts to this species.

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**Roundtail chub**

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This native fish species, within the planning area, is found in the mainstem of the Colorado River from about Glenwood Springs downstream. Fire has never been a direct factor influencing this species. However, secondary effects of fire could impact this species.

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**Midget faded rattlesnake**

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Little is known about the midget faded rattlesnake, particularly within the planning area. This snake ranges from across Utah and portions of Wyoming into westcentral Colorado. Colorado's populations make up the eastern margin of range for this species. Midget faded rattlesnakes are found within most habitat types within the range. This species is of concern in Colorado because of the small number of records and restricted range. Threats to this species include development, outright killing, and illegal collection of individuals for commercial purposes. Fire is not thought to be a factor affecting this species.

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**Utah milk snake**

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Little is known about the Utah milk snake, particularly within the planning area. This snake ranges from across Utah and portions of Wyoming into westcentral Colorado. Colorado's populations make up the eastern margin of range for this species. Utah milk snakes occupy various habitats, but many records have been noted within and near floodplains. This species is of concern in Colorado because of the small

number of records and restricted range. Threats to this species include development, outright killing, and illegal collection of individuals for commercial purposes. Fire is not thought to be a factor affecting this species.

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#### **Northern leopard frog**

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This species ranges across much of the northern United States and southern Canada, and has been found within the planning area on public lands. This frog inhabits many aquatic and wetland habitats including springs, ponds, lakes, and wet meadows. Because of its close association with water, fire is not thought to be a factor regarding this species.

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#### **Great Basin spadefoot toad**

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This species, as the name implies, is found mostly in the Great Basin. However, records exist within the planning area. Colorado is at the southeastern edge of this species range. This species inhabits pinyon-juniper woodlands, and sagebrush and semidesert shrublands. This species is of concern in Colorado due to its limited occurrence and small range. However, populations are not declining and currently the majority of habitats important to this species are not threatened. Fire could play a small role regarding this species. Wildland fires that burn in pinyon-juniper woodlands or sagebrush with cheatgrass or potential for cheatgrass invasion could reduce habitat quality.

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#### **Peregrine falcon**

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The peregrine falcon was recently taken off of the list of Threatened and Endangered species. It occurs within the planning area along cliff faces along portions of the Colorado River. At least 4 known nesting pairs have been noted. Fire has rarely played a role in the maintenance of this species habitat.

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#### **Arapien stickleaf**

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The Arapien stickleaf is endemic to steep, eroding talus slopes of the Green River Formation in Garfield and Rio Blanco County, Colorado and portions of central Utah. The Arapien stickleaf grows on sparsely vegetated sites in association with species such as ocean spray, Dragon milkvetch, Parachute penstemon, and Utah fescue. Most of the known populations occur along the Roan Cliffs, but several populations have been found along the drainages south of the Cliffs where soils of the Green River Formation have washed down onto the flats. Fire probably never played an important role in the ecology of this species due to the sparse vegetation in habitats where it is found.

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#### **Debeque milkvetch**

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The milkvetch is restricted to sandy clay soils of the Atwell Gulch Member of the Wasatch Formation at elevations between 5,000 and 6,000 feet. This geological formation is found in the Colorado River Valley between DeBeque and Rifle. The associated plant communities are pinyon-juniper and desert shrub.

Fire historically played a minor role in the salt-desert shrub community due to the lack of fuels to carry a fire. Fire was more common in the pinyon-juniper habitats, but usually had little long-term impact on the herbaceous understory. However, the spread of cheatgrass into this habitat type has increased the fire probability of some areas. Where cheatgrass is present, it generally increases in dominance following fire and may inhibit regeneration of DeBeque milkvetch following fire.

## **Harrington's penstemon**

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Harrington's penstemon is found between 6,800 and 9,200 feet on open Mountain Big sagebrush sites in the upper Colorado and Eagle River drainages. As part of the sagebrush community, this species evolved with the fire regimes typical for sagebrush.

### **BLM SENSITIVE SPECIES - Environmental Consequences & Mitigation:**

#### **Proposed Action:**

Several of the BLM Sensitive species noted above are not affected by the Proposed Action or Alternative A, and will not be discussed further. These include the white-faced ibis, barrows goldeneye, bat species, Utah milk snake, and midget-faded rattlesnake. Discussion will focus on those species with potential to be affected by the Proposed Action which will allow for more fire (D zones) and use of vegetative treatments.

Under the Proposed Action, the majority of the BLM Sensitive species will be positively impacted in the long term. The majority of these species evolved with fire which helped to maintain habitats important to these species. Habitat changes resulting from the increased use of natural or prescribed fire and vegetative treatments will be compatible with the long term health of the land and will benefit species inhabiting these lands. The increased use of natural fire will help to restore fire's natural role in fire dependant ecosystems, and will help to return vegetative communities to a more normal fire regime. The use of fire and vegetative treatments to reduce hazardous fuels will reduce the potential for larger catastrophic fire events.

The majority of BLM Sensitive species found within the planning area evolved with fire, and fire historically played an important role in maintaining habitats important for most of these species. Therefore, potential impacts are not directly related to wildland fires, but to the discretionary action of suppressing wildland fires. It is the action of suppressing wildland fires and the methods employed to do so that could result in negative impacts. Other impacts could occur as a result of the implementation of vegetative treatment projects. However, all vegetation treatments will be designed to benefit BLM Sensitive species. Up front mitigation to minimize potential impacts will be a part of any vegetative treatment project.

## **Greater sage grouse**

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Fire historically maintained habitats important to this species. The FMP recognizes greater sage grouse habitat exists within the planning area. Greater sage grouse are recognized as a resource value in FMZs; A-140-05, B-140-06, B-140-07, C-140-03. FMZ goals include increasing the quantity and quality of sagebrush shrublands for sagebrush-dependent species. Long-term implementation of the FMP is designed to maintain/enhance greater sage grouse habitat. With the implementation of prescriptive vegetation treatment guidance, the FMP could increase the quality and quantity of habitat suitable for the species.

#### Direct Effects

Fire can directly impact nesting birds and young and can result in direct mortality of individuals. The use of heavy equipment, smoke, and human activity can effect birds, particularly during the nesting season. Fire line in sage grouse habitat can fragment habitat and result in losses of key vegetation. Treatments may reduce the abundance and quality of key habitats in the short-term and reduce foraging quality.

#### Indirect Effects

Vegetative treatments may indirectly effect sage grouse. Portions of sage grouse habitat could be reduced in quality and quantity, resulting in the use of less suitable habitats. This could effect sage

grouse productivity.

The following minimization measures will apply and should reduce potential impacts, both direct and indirect, to sage grouse species occurring within the planning boundary:

- Vegetative treatments will avoid (1/4 mile radius) around known lek sites, and no activity will be allowed around active lek sites from March 15 to May 31.
- Aggressively suppress wildland fires in sagebrush vegetation within mapped sage grouse habitats to minimize expansive losses of sagebrush.
- Identify and avoid known lek sites when managing wildland fire and using heavy equipment.
- In sage grouse winter habitats, protect unburned patches of sagebrush within the fire perimeter.
- Evaluate wildland fires to determine whether reseeding is necessary to achieve habitat management objectives as recommended in the *Guidelines to manage sage grouse populations and their habitats* (Connelly, Schroeder, Sands and Braun 2000).
- Vegetation treatments within sage grouse habitats will be designed in accordance with recommended prescriptions found in the *Guidelines to manage sage grouse populations and their habitats* (Connelly, Schroeder, Sands and Braun 2000).

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### **Columbian sharp-tailed grouse**

Due to a lack of suitable habitat, and an absence of birds in the planning area, no negative impacts to this species are anticipated. Suppression activities should have no effect and no constraints will be placed on fire suppression activities regarding this species.

This species will not be benefited directly, however, potential habitat should benefit through prescribed fire and vegetative treatments. Managed fires and vegetative treatments should help to create and restore habitats important to this species.

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### **Colorado River cutthroat trout**

Overall, Colorado River cutthroat trout should benefit from the implementation of the FMP. The reduction of hazardous fuels will also reduce the potential for large catastrophic fire events that could significantly impair water quality and increase erosion. Vegetative treatments will help to improve upland habitat conditions that will minimize erosion concerns and will reduce sedimentation and water quality concerns. In addition, studies have shown that large wildland fires are important to maintain and provide long-term stream habitat complexity that can benefit instream biodiversity and threatened and endangered species habitat (Everest et al. 1987. Reeves et al. 1995).

#### Direct Effects

Wildland fires and related suppression actions can impact fishes. In particular the use of fire retardant can result in immediate and direct impacts to fishes. Fire retardant when mixed with water and exposed to UV radiation, breaks down to form hydrogen cyanide (HCN), which is extremely toxic to aquatic life. In addition, Ammonia (NH<sub>3</sub>), which is highly soluble will result when retardant is placed into water. When ammonia dissolves in water a chemical equilibrium is maintained between ammonia, which is toxic, and ionized ammonia (NH<sub>4</sub><sup>+</sup>) which is less toxic. The chemical balance between these 2 forms of ammonia is determined by pH, temperature, and total ammonia concentration. In most streams, the pH is sufficiently low and NH<sub>4</sub><sup>+</sup> predominates. However, in highly alkaline waters, NH<sub>3</sub> concentrations increase and can reach toxic levels. Ammonia in the range of 0.2 to 2.0 mg/L can be lethal to fishes. The toxicity of retardant to aquatic life is generally due to these two components (free cyanide and ammonia).

Other factors resulting from wildland fires include the potential for large, acute influxes of heated slag and ash which can have both immediate and direct impacts to fishes. This is due mainly to elevated water temperatures to lethal limits. Water quality is also impaired as changes in pH and phosphate

can result when leached from ash.

#### Indirect Effects

Longer term impacts can result due to increases in runoff and higher peak flows, until adequate vegetation stabilizes soils and retains water. Other suppression efforts could also result in some short-term impacts, including the construction of fire lines which could increase erosion.

To reduce potential impacts, both direct and indirect, to Colorado River cutthroat trout, the following minimization measures will be followed:

- Attempts will be made to minimize losses of vegetation within 100 yards of occupied drainages to minimize the potential for erosion of sediments into occupied waters.
- Provide for drainage with water bars on constructed hand/dozer lines and impacted areas in critical watershed areas (see Part 12 for guidelines).
- Develop vegetative treatments to minimize impacts to cutthroat trout in consultation with the Field Office biologist and following guidelines outlined in the *Conservation Agreement and Strategy for Colorado River Cutthroat Trout in the States of Colorado, Utah, and Wyoming, April 2001*.
- Avoid aerial application of retardant or foam within 300 feet of any body of water including lakes, rivers, streams and ponds whether or not they contain aquatic life. (See exceptions under southwest willow flycatcher).
- Vegetation treatments conducted on uplands adjacent to streams occupied by Colorado River cutthroat trout will be conducted in a manner that limits potential for soil erosion and sedimentation and increases vegetative ground cover. This includes riparian restoration work intended to improve habitats.

#### **Northern goshawk**

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This species should benefit from the implementation of the FMP. The reduction of hazardous fuels will help to minimize expansive losses of key habitat and will help to maintain and enhance habitats important to goshawks and their prey.

#### Direct Effects

Direct effects from fire should be minimal. However, fire suppression activities could result in some impacts. These include construction of fire line. Vegetation treatments should benefit this species but could result in time lags associated with the regeneration of key vegetative species.

#### Indirect Effects

Goshawks could be effected indirectly by human disturbance, noise, and smoke. This could result in some short-term impacts, particularly to nesting birds.

To minimize impacts to goshawks in the high nest concentration areas at Castle Peak and King Mountain, the following minimization measures will be applied:

- Fire line construction will attempt to avoid the destruction of known nest trees in the concentrated nesting areas on Castle Peak (FMZ D-140-02), and King Mountain (FMZ B-140-07). Line may be constructed around known nest trees to protect them. All fire line will be obliterated and reclaimed to minimize human use.
- Linear openings (fire line, access routes and escape routes) associated with fire suppression will be obliterated and reclaimed in order to deter future human use.
- Vegetative treatments will be designed to maintain dense tree canopies in nesting habitats while improving understory vegetation and maintaining foraging habitats. Large blocks of unroaded habitat will be protected/reclaimed.
- Vegetation treatments should maintain a 1/4 mile buffer zone around known nest sites from February 1 to August 15.

## Flannelmouth sucker

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Overall, flannelmouth suckers should benefit from the implementation of the FMP. The reduction of hazardous fuels will also reduce the potential for large catastrophic fire events that could significantly impair water quality and increase erosion. Vegetative treatments will help to improve upland habitat conditions that will minimize erosion concerns and will reduce sedimentation and water quality concerns. In addition, studies have shown that large wildland fires are important to maintain and provide long-term stream habitat complexity that can benefit instream biodiversity and threatened and endangered species habitat (Everest et al. 1987. Reeves et al. 1995).

### Direct Effects

Wildland fires and related suppression actions can impact fishes. In particular the use of fire retardant can result in immediate and direct impacts to fishes. Fire retardant when mixed with water and exposed to UV radiation, breaks down to form hydrogen cyanide (HCN), which is extremely toxic to aquatic life. In addition, Ammonia (NH<sub>3</sub>), which is highly soluble will result when retardant is placed into water. When ammonia dissolves in water a chemical equilibrium is maintained between ammonia, which is toxic, and ionized ammonia (NH<sub>4</sub><sup>+</sup>) which is less toxic. The chemical balance between these 2 forms of ammonia is determined by pH, temperature, and total ammonia concentration. In most streams, the pH is sufficiently low and NH<sub>4</sub><sup>+</sup> predominates. However, in highly alkaline waters, NH<sub>3</sub> concentrations increase and can reach toxic levels. Ammonia in the range of 0.2 to 2.0 mg/L can be lethal to fishes. The toxicity of retardant to aquatic life is generally due to these two components (free cyanide and ammonia).

Other factors resulting from wildland fires include the potential for large, acute influxes of heated slag and ash which can have both immediate and direct impacts to fishes. This is due mainly to elevated water temperatures to lethal limits. Water quality is also impaired as changes in pH and phosphate can result when leached from ash.

### Indirect Effects

Longer term impacts can result due to increases in runoff and higher peak flows, until adequate vegetation stabilizes soils and retains water. Other suppression efforts could also result in some short-term impacts, including the construction of fire lines which could increase erosion.

To reduce potential impacts, both direct and indirect, to flannelmouth suckers, the following minimization measures will be followed:

- Avoid aerial application of retardant or foam within 300 feet of any body of water including lakes, rivers, streams and ponds whether or not they contain aquatic life. (See exceptions under southwest willow flycatcher).
- Within the Colorado River drainage and associated tributaries located in FMZ B-140-02 and C-140-01, minimize the erosion of sediments into the Colorado River by:
  - minimizing vegetation losses,
  - coordinating fire line placement with the resource advisor or hydrologists.
  - constructing fire lines in a manner that limits the potential for erosion,
  - rehabilitating constructed hand/dozer lines/impacted areas in critical watershed areas and placing water bars where erosion potential is high (see FMP Part 12).
- Vegetation treatments conducted on uplands adjacent to the Colorado River will be designed and conducted in a manner that limits potential for soil erosion and sedimentation and increases vegetative ground cover. This includes riparian restoration work, and salt cedar removal, intended to improve habitats.

## **Roundtail chub**

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Overall, roundtail chubs should benefit from the implementation of the FMP. The reduction of hazardous fuels will also reduce the potential for large catastrophic fire events that could significantly impair water quality and increase erosion. Vegetative treatments will help to improve upland habitat conditions that will minimize erosion concerns and will reduce sedimentation and water quality concerns. In addition, studies have shown that large wildland fires are important to maintain and provide long-term stream habitat complexity that can benefit instream biodiversity and threatened and endangered species habitat (Everest et al. 1987. Reeves et al. 1995).

### Direct Effects

Wildland fires and related suppression actions can impact fishes. In particular the use of fire retardant can result in immediate and direct impacts to fishes. Fire retardant when mixed with water and exposed to UV radiation, breaks down to form hydrogen cyanide (HCN), which is extremely toxic to aquatic life. In addition, Ammonia (NH<sub>3</sub>), which is highly soluble will result when retardant is placed into water. When ammonia dissolves in water a chemical equilibrium is maintained between ammonia, which is toxic, and ionized ammonia (NH<sub>4</sub><sup>+</sup>) which is less toxic. The chemical balance between these 2 forms of ammonia is determined by pH, temperature, and total ammonia concentration. In most streams, the pH is sufficiently low and NH<sub>4</sub><sup>+</sup> predominates. However, in highly alkaline waters, NH<sub>3</sub> concentrations increase and can reach toxic levels. Ammonia in the range of 0.2 to 2.0 mg/L can be lethal to fishes. The toxicity of retardant to aquatic life is generally due to these two components (free cyanide and ammonia).

Other factors resulting from wildland fires include the potential for large, acute influxes of heated slag and ash which can have both immediate and direct impacts to fishes. This is due mainly to elevated water temperatures to lethal limits. Water quality is also impaired as changes in pH and phosphate can result when leached from ash.

### Indirect Effects

Longer term impacts can result due to increases in runoff and higher peak flows, until adequate vegetation stabilizes soils and retains water. Other suppression efforts could also result in some short-term impacts, including the construction of fire lines which could increase erosion.

To reduce potential impacts, both direct and indirect, to this species, the following minimization measures will be followed:

- Avoid aerial application of retardant or foam within 300 feet of any body of water including lakes, rivers, streams and ponds whether or not they contain aquatic life. (See exceptions under southwest willow flycatcher).
- Within the Colorado River drainage and associated tributaries located in FMZ B-140-02 and C-140-01, minimize the erosion of sediments into the Colorado River by:
  - minimizing vegetation losses,
  - coordinating fire line placement with the resource advisor or hydrologists.
  - constructing fire lines in a manner that limits the potential for erosion,
  - rehabilitating constructed hand/dozer lines/impacted areas in critical watershed areas and placing water bars where erosion potential is high (see FMP Part 12).
- Vegetation treatments conducted on uplands adjacent to the Colorado River will be designed and conducted in a manner that limits potential for soil erosion and sedimentation and increases vegetative ground cover. This includes riparian restoration work, and salt cedar removal, intended to improve habitats.

## **Northern leopard frog**

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Overall, effects to this species should be minimal. There is some habitat for this species on BLM



lands located within the planning area.

#### Direct Effects

Wildfires and related suppression actions can impact aquatic species including northern leopard frogs. In particular the use of fire retardant can result in immediate and direct impacts to frogs. Fire retardant when mixed with water and exposed to UV radiation, breaks down to form hydrogen cyanide (HCN), which is extremely toxic to aquatic life. In addition, Ammonia (NH<sub>3</sub>), which is highly soluble will result when retardant is placed into water. When ammonia dissolves in water a chemical equilibrium is maintained between ammonia, which is toxic, and ionized ammonia (NH<sub>4</sub><sup>+</sup>) which is less-toxic. The chemical balance between these 2 forms of ammonia is determined by pH, temperature, and total ammonia concentration. In most streams, the pH is sufficiently low and NH<sub>4</sub><sup>+</sup> predominates. However, in highly alkaline waters, NH<sub>3</sub> concentrations increase and can reach toxic levels. Ammonia in the range of 0.2 to 2.0 mg/L can be lethal to fishes. The toxicity of retardant to aquatic life is generally due to these two components (free cyanide and ammonia), and may be enhanced within closed aquatic environments such as ponds, lakes, and reservoirs that harbor this species.

Other factors resulting from wildland fires include the potential for large, acute influxes of heated slag and ash which can have both immediate and direct impacts. This is due mainly to elevated water temperatures to lethal limits. Water quality is also impaired as changes in pH and phosphate can result when leached from ash. The best potential boreal toad habitat located on BLM lands within the planning area is located within FMZ D-140-02. This "D" zone could allow wildland use fire which could potentially result in the above impacts.

#### Indirect Effects

Longer term impacts can result due to increases in runoff and higher peak flows, until adequate vegetation stabilizes soils and retains water. Other suppression efforts could also result in some short-term impacts, including the construction of fire lines which could increase erosion.

To reduce potential impacts, both direct and indirect, the following mitigation measures will be followed:

- Avoid aerial application of retardant or foam within 300 feet of any body of water including lakes, rivers, streams and ponds whether or not they contain aquatic life. (See exceptions southwest willow flycatcher).

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#### **Great Basin spadefoot toad**

Effects to this species should be minimal. In the long-term, this species should benefit from the implementation of the FMP.

Effects should be minimal. However, fires in low elevation pinyon-juniper woodlands could result in the invasion of cheatgrass, where this grass species dominates the understory. This could result in a reduction in habitat quality for this species.

As a means of minimizing impacts to this species the following minimization measures will apply:

- Post-fire evaluations of wildland fires within the lower elevation pinyon-juniper woodlands and sagebrush habitats, within FMZ B-140-02, will review the need for cheatgrass control and/or re-seeding.
- Vegetative treatments will consider the need for re-establishment of desired native species in order to minimize the invasion of cheatgrass.

### **Peregrine falcon**

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Very little impact is anticipated to this species. The cliff habitat these birds prefer is not prone to fire and risks from suppression are minimal. This species should benefit in the long-term as habitats important for its prey species is maintained and enhanced. There is the potential that smoke and noise could result in short-term impacts particularly during the nesting season.

No specific mitigation will be required regarding fire suppression activities.

### **Arapien stickleaf**

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Overall, effects to this species should be minimal.

#### Direct and Indirect Effects

The probability of a fire occurring in occupied Arapien stickleaf habitat is highly unlikely due to the sparse vegetation. Because of the sparse vegetation, there should be no need to construct a fire line or reduce hazardous fuels within the habitat. Most of the habitat occurs on steep slopes which would preclude vehicular traffic. Therefore, the impacts of fire suppression activities or vegetation treatments would be minimal. However, there are several populations which occur in flat washed out areas along the drainages south of the Roan Cliffs. These areas would be accessible to vehicular traffic.

To reduce potential impacts, both direct and indirect, the following mitigation measures will be followed:

- Minimize surface disturbance by using retardant, water, engines/wet lines, etc in known habitat for this species.
- Avoid off-road use of motorized vehicles and mechanical equipment in occupied habitat.

### **DeBeque milkvetch**

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Effects should be minimal. Fire line constructed in Debeque milkvetch habitat can fragment habitat and result in losses of individual plants. These impacts would be expected to be short-lived. However, in areas where cheatgrass is present or has the potential to invade, fire or other vegetative treatments could result in increases in cheatgrass which may inhibit regeneration of Debeque milkvetch.

As a means of minimizing long-term impacts to this species the following minimization measures will apply:

- Post-fire evaluations within the lower elevation pinyon-juniper woodlands and salt desert shrub habitats, within FMZ B-140-02 and C-140-02, should review the need for cheatgrass control and/or re-seeding. Re-seeding should emphasize locally-adapted native species or short-lived introduced species that will not out compete the DeBeque milkvetch.
- Vegetative treatments will consider the need for cheatgrass control and/or reseeding. Reseeding should emphasize native species or short-lived introduced species that will not out compete the Debeque milkvetch.

### **Harrington's penstemon**

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Fire historically maintained the sagebrush habitats that support this species. Harrington's penstemon are recognized as a resource value in the following FMZs: A-140-04, A-140-05, A-140-06, B-140-03,

B-140-04, B-140-05, B-140-06, B-140-07, C-140-03, and C-140-04. FMZ goals include restoring the quality and quantity of sagebrush shrublands for sagebrush-dependent species.

#### Direct Effects

Fire is not expected to directly impact Harrington's penstemon populations. Fire line constructed in penstemon habitat can fragment habitat and result in losses of individual plants. Treatments may reduce the abundance and quality of habitat. These impacts would be expected to be short-lived.

#### Indirect Effects

Vegetative treatments may indirectly affect Harrington's penstemon populations. Increases in herbaceous cover following vegetative treatment may outcompete with the penstemon for water, nutrients, and sunlight. Removal of the protective sagebrush canopy may leave the plants vulnerable to grazing.

The following minimization measures will apply to vegetative treatments and should reduce impacts to Harrington's penstemon:

- Avoid treatments that create significant amounts of surface disturbance.
- Protect Harrington's penstemon populations by treating sufficient acres of vegetation so as not to create small areas that would lead to concentrated grazing by big game and livestock.

#### **Alternative A:**

Under this alternative, impacts in the short term would be similar to the Proposed Action. This is because all wildland fires would be suppressed leading to potential suppression related impacts. With the mitigation proposed under the Proposed Action, these impacts would be reduced.

Long term impacts to BLM Sensitive species would be negative and cumulative resulting from the possibility of larger catastrophic wildland fires due to the build up of hazardous fuels. This could lead to losses of key habitats for these species and result in greater impacts.

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### **CRITICAL ELEMENT - WASTES, HAZARDOUS OR SOLID**

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#### **WASTES, HAZARDOUS OR SOLID - Affected Environment:**

Hazardous or solid wastes are generally not present in the area covered by the proposed action. However, there is always a potential that they could be present. Generally, solid wastes, in the form of illegal dumps, would not be adversely impacted nor would the burning of these dumps impact human health or the environment. There is a potential for a wildland fire to impact an illegal hazardous waste dump. Such an event could, depending on the material, cause harm to the environment, or fire fighters. These incidents can only be dealt with as they happen. The hazardous materials contingency plan, and awareness training for all employees should minimize potential harm to fire fighters or the public.

#### **WASTES, HAZARDOUS OR SOLID - Environmental Consequences & Mitigation:**

##### **Proposed Action:**

As discussed above, wildland fires may burn illegal trash/hazardous waste dumps. This would be rare. Impacts would depend entirely on the nature of the material dumped but could result in harm to the environment or fire fighters. This would have to be dealt with on a case-by-case basis, in accordance with the Hazardous Materials Contingency Plans in order to minimize potential harm. Hazardous materials may also be introduced as a result of the fire fighting activities, in the form of equipment fuel and lubricants, and excess fuel used for saws and fire ignition. Improper disposal of excess fuel and lubricant could cause environmental harm and violate state and federal laws. These

potential negative impacts could be mitigated by ensuring that soils contaminated by spilled fuels are either treated on-site, or disposed of properly. Rehabilitation plans should consider contaminated soils.

**Alternative A:**

Consequences and mitigation measures would be the same as for the Proposed Action.

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**CRITICAL ELEMENT - WATER QUALITY, SURFACE OR GROUND**

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**WATER QUALITY, SURFACE OR GROUND - Affected Environment:**

The management area lies within the upper Colorado River watershed. Major tributaries include the Eagle, Piney, Roaring Fork, Fryingpan and Crystal Rivers. The headwater areas, generally, have good water quality, meeting or exceeding water quality standards established for the beneficial uses on tributary streams. Lower elevations have some water quality concerns that originate from soils derived to a large extent from Mancos Shale, Eagle Valley Evaporite, and the Wasatch Formations. The Mancos Shale and Eagle Valley Evaporite Formations occur primarily east of Glenwood Canyon. The Wasatch Formation exists primarily west of Silt, Colorado. The highest sediment loads occur during periods of high flow, during the spring snowmelt season on the largest streams, and following intense precipitation events on the smaller tributaries. Highest dissolved salt concentrations occur during low flow periods, typically late fall and winter.

The Glenwood Springs Resource Management Plan (RMP) designates Water Quality Management Areas (WQMA) and Critical Watershed Areas where fuel load reduction projects, prescribed fire, and wildland fire would require special management considerations. Four WQMAs are shown in the RMP that highlight extensive areas with fragile soils that contribute elevated levels of sediment and chemicals, primarily salinity, that degrades water quality and could result in accelerated erosion problems if the vegetation is removed through manipulation or wildland fire. The Upper Colorado River, and the Milk Alkali Creeks WQMAs are watersheds with extensive areas of soil derived from the Mancos Shale Formation. The Horse, Willow, and Poison Creeks WQMA is located on the Eagle Valley Evaporite Formation on the lower part of the watershed which corresponds to the areas of intermingled private and BLM administered land. The Divide Creek WQMA has soils derived in part from the Wasatch Formation. The RMP calls for monitoring water quality on these watersheds to determine the effects of planned vegetation manipulations or wildland fire. Critical Watershed Areas include the Municipal Watersheds of New Castle and Rifle, a Debris Flow Hazard Zone around Glenwood Springs, and several Erosion Hazard Areas scattered through the FO area. The RMP objective is to protect the Municipal Watersheds by restricting vehicle use, vegetation manipulations, fire, etc. The Glenwood Springs Debris Flow Hazard Zone objective is to prohibit vegetation manipulations and to establish a fire exclusion zone and extinguish all wildland fires immediately. The Erosion Hazard Zones are to be managed to protect watershed conditions.

**WATER QUALITY, SURFACE OR GROUND - Environmental Consequences & Mitigation:**

Burning would have both long-term and short-term impacts to water quality. Following the burn there would be a short-term increase in sediment and a nutrient flush within the impacted watershed. The primary impact would be from sediment which would result from increased overland flow and channel scour, and would continue for weeks or months, until the grasses in the treatment area provide adequate ground cover. In the long-term, the sediment yield would actually decrease from pre-treatment levels, due to increased ground cover. A nutrient flush would include calcium, magnesium, potassium, which are converted to oxides and deposited as ash on the soil surface. The oxides are low in solubility until they react with carbon dioxide and water of the atmosphere forming bicarbonate salts. As salts, they are more easily dissolved in surface runoff or by leaching. Sediment can also serve as a vehicle for phosphorus, calcium, magnesium, potassium loss. The more vegetation that is

removed the higher the intensity and duration of the flush. Most of the nutrients would be flushed during the first runoff and the levels would decrease dramatically as watershed conditions stabilize.

**Proposed Action:**

Implementation of the proposed FMP would result an initial increase in sediment and nutrient flush due to the increase in the amount of prescribed burning and fuels management. These negative impacts to surface water quality would be expected to last for a year or until vegetation can substantially reestablish. Following reestablishment of a vegetative cover, sediment and nutrient yield would be expected to be reduced. In the long term, fire and fuel management would limit fire size and intensity. The fire cycle would better approximate the natural cycle. More frequent, but less intense burns would occur. Negative impacts to surface water quality impacts would, thereby, be minimized. It is not anticipated that ground water quality would be affected.

**Alternative A:**

Active suppression of wildland fires would continue to create additional fuel loading, creating a situation that would eventually lead to large and intense wildland fires. These would create consequential water quality impacts. Current management practices are not anticipated to impact ground water quality.

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**CRITICAL ELEMENT - WILDERNESS, AREAS OF CRITICAL ENVIRONMENTAL CONCERN,  
WILD AND SCENIC RIVERS**

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**WILDERNESS, AREAS OF CRITICAL ENVIRONMENTAL CONCERN, WILD AND SCENIC RIVERS -  
Affected Environment:**

Wilderness:

There are currently no designated wilderness areas within the GSF0 planning unit. The planning unit does contain four Wilderness Study Areas (WSA) which include the Castle Peak WSA (12,237 acres), Bull Gulch WSA (15,201 acres), Maroon Bells-Snowmass Wilderness Addition -Eagle Mountain WSA (330 acres), Flat Tops Wilderness Addition-Hack Lake WSA (10 acres).

Wilderness Study Area designations, serve as a temporary administrative designation on lands that have wilderness character and are being managed so as not to impair the areas suitability and the ability of Congress to declare the area as wilderness some time in the future. These WSA's will be managed under the BLM's Interim Management Policy and Guidelines for Lands Under Wilderness Review (IMP), H-8550-1 until Congress acts.

In addition 36,900 acres of newly transferred lands were inventoried for Wilderness Character in 1999 and 2000 as mandated by FLPMA. Three of units were found to have wilderness character. Those units are East Fork of Parachute Creek - 8,330 acres; Northeast Cliffs - 5,799 acres; and the Southeast Cliffs - 5,193 acres. These lands are currently being studied under the Roan Plateau RMP amendment, EIS. The planning process will analyze and determine whether or not these units will become WSA's and therefore managed under IMP until Congress Acts.

Citizens Wilderness Proposed Areas (CWP):

The Glenwood Springs resource area also contains lands that have been identified by Citizens as areas that deserve wilderness protection. These lands are currently in legislation (Colorado Wilderness Act of 2001). The identified lands are also currently being managed under Colorado State Policy to prevent irreversible and irretrievable impacts. Some of these areas overlap BLM's WSA's and ACEC designations.

The CWP areas within the Glenwood Springs Resource Area are: Bull Gulch -15,141; Castle Peak -

16,250 acres; Deep Creek - 22,170; Flat Tops Addition (Hack Lake) -13,272 acres, Maroon Bells-Snowmass Addition (Eagle Mountain) -317 acres; Roan Plateau - 40,424 acres, Thompson Creek- 25,259 acres, Hogback - 11, 681 acres, Pisgah Mountain - 15, 657 acres.

Area's of Critical Environmental Concern:

Bull Gulch Area of Critical Environmental Concern (ACEC) - 10,214 acres of high scenic value; Deep Creek ACEC -2,470 acres of high scenic value; Thompson Creek ACEC - 4,286 acres of high scenic and geologic values; Blue Hill ACEC - 4,718 acres of archaeological values; Glenwood Springs Debris Flow ACEC - 6,675 for mud and debris flow.

Wild and Scenic Rivers:

In 1995 Deep Creek was found to be "eligible" for the addition to the National Wild and Scenic Rivers system. Currently "suitability" is being addressed in the White River National Forest Management Plan. Wild and scenic designations are to preserve unique streams in a free-flowing condition, and to protect their outstanding resource values for the benefit and enjoyment of present and future generations.

**WILDERNESS, AREAS OF CRITICAL ENVIRONMENTAL CONCERN, WILD AND SCENIC RIVERS - Environmental Consequences & Mitigation:**

The IMP non-impairment mandate states: "During period of review of such areas and until Congress has determined otherwise, the Secretary shall continue to manage such lands according to his authority under this Act and other applicable law in a manner so as not to impair the suitability of such areas for preservation as wilderness..." . Under both the proposed action and Alternative A (continuation of current management) the IMP guidance is included in the proposed action for all wildland fire activities within WSA's. IMP guidance provides protection for the following wilderness characteristics:

- Roadless
- Naturalness
- Affected primarily by the forces of nature
- Human impacts must be substantially unnoticeable.
- Outstanding opportunities for solitude and/or primitive and unconfined types of recreation
- Supplemental values

Fire is a natural component of many wilderness ecosystems which must be considered before recommending one fire management technique over another. Fire management procedures must rely on the most effective methods of suppression that are the least damaging to wilderness values, other resources and the environment.

**Proposed Action:**

Suppression restrictions for WSAs have not changed under the proposed action. The proposed action, with the resource area wide recommendations and restrictions, should not negatively effect wilderness characteristics, naturalness or other resource values.

Similar restrictions would be applied to ACEC's, and CWP areas. The additional restrictions in ACECs and CWP areas may result in longer and more costly periods of fire suppression if the appropriate management response is to suppress. However such suppression constraints will better protect identified values.

Under the proposed action the special area designations in D FMZs will be managed to return fire to a more natural role in the ecosystem to the extent possible under the Wildland Fire Implementation Plan procedures. Special areas in C FMZs would be managed by the appropriate management response that recognizes ecological and resource constraints. Because of the negative impacts from unplanned ignitions, fire suppression in B zones will be aggressive but utilized the suppression restrictions identified for these areas.

Short term impacts (closures to public entry, reduced solitude, etc.) may occur due to wildland fire use in D FMZs. The proposed action will likely increase the number of acres burned each year especially in D fire management zones. However the cumulative impact of the proposed action will be positive in the long term because it will return fire to these areas, restore a more natural mosaic of vegetation types, reduce fuel loading and lower the risks of larger catastrophic wildland fires which could destroy wilderness characteristics over large areas.

**Alternative A:**

The impacts to WSA's under Alternative A will not be considerably different from the proposed alternative because the areas will still be managed in accordance with IMP guidelines. However impacts from fire suppression activities could be greater within ACEC's and CWP areas that currently do not have protective suppression restrictions and recommendations to ensure protection of special values.

Continued suppression of all wildland fires will likely increased the risk of a large catastrophic wildland fire that could prominently and atypically alter the character of these areas and result in the loss of important resources and supplemental values.

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**CRITICAL ELEMENT - ENVIRONMENTAL JUSTICE**

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**ENVIRONMENTAL JUSTICE - Affected Environment/Environmental Consequences & Mitigation:**

Public involvement and consultation has not identified any disproportionately high or adverse human health or environmental effects proposed with this project on minority populations and low-income populations as provided for under Environmental Justice considerations, for either alternative.

**Proposed Action:**

No change or affect. The proposed action, including aggregate and cumulative affects, will not adversely and disproportionately impact minority populations, low-income communities, and Tribes (reference Executive Order No. 12898, A Environmental Justice).

**Alternative A:**

No change or affect. Alternative A, including aggregate and cumulative affects, will not adversely and disproportionately impact minority populations, low-income communities, and Tribes (reference Executive Order No. 12898, A Environmental Justice).

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**CRITICAL ELEMENT - INVASIVE, NON-NATIVE SPECIES**

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**INVASIVE, NON-NATIVE SPECIES - Affected Environment:**

The variety and elevation differences within the resource area produces a wide range of plant communities and along with it a variety of noxious non-native weeds. See the "Affected Environment , Vegetation" section of the Glenwood Springs Resource Management Plan, Final Environmental Impact Statement", page 93. Currently there, are noxious weeds present on 212,800 acres within the Glenwood Springs Resource Area. The current inventory is not complete and represents approximately 16 known species. Most species are concentrated along roads, railroads, riparian areas and in past firewood sales and wildland fire areas. Lesser amounts can be found in areas of soil disturbances such as gravel pits,

stock ponds, and various rights-of-way.

Species that are most abundant include, Downey brome (*Bromus tectorum*), Russian knapweed (*Acroptilon repens*), Canada thistle (*Cirsium arvense*), Musk thistle, (*Carduus nutans* L.) Houndstongue (*Cynoglossum officinale* L.) Plumeless thistle (*Carduus acanthoides*), and Tamarisk (*Tamarix ramosissima*).

Noxious weeds may affect the environment by altering soil properties, depleting soil nutrients, altering the composition of native plant communities, altering movement and use by animals and by reducing their abundance, and by altering the historic disturbance cycles, including fire and grazing. On a watershed level, heavy infestations of weeds can alter seasonal water flows, reduce infiltration, and increase run off. Noxious weeds can detract from recreation sites and lower property values, and they can increase the costs and lower the returns of commercial operations.

### **INVASIVE, NON-NATIVE SPECIES - Environmental Consequences & Mitigation:**

#### **Proposed Action:**

Suppressing wildland fire will reduce the opportunity for weeds to invade by reducing the number of acres disturbed by fire in FMZs A and B but may increase the opportunity to introduce and spread weeds due to human activity. Fire favors some species of weeds and in those instances aggressive suppression may be desirable. In the intermountain region the introduction of cheat grass (*Bromus tectorum*) has increased the frequency of wildland fires and is considerably enhanced by fire. Native species, not adapted to such frequent wildland fires are consequently at a great disadvantage.

In fire management zones C and D the increase in area burned may aid in the establishment of noxious weeds in proportion to the area burned. The possibility of introduction of weeds from fire suppression actions is still present. The burning of some weeds followed by a herbicide treatment can be an effective weed management tool in certain situations.

The decision to take less aggressive suppression action should take into account the weed situation to determine if fire can be a mitigating action or a negative environmental consequence.

Other mitigation should include the avoidance of weed patches when practical and possible with equipment, camp facilities, parking or staging areas. When noxious weeds are present, fire lines and burned areas should be seeded using certified weed free seed suitable to the soils and climate. The cleaning of equipment and vehicles is an important mitigating measure in preventing the introduction and spread of noxious weeds. When fire vehicles come from areas of the country that have weeds not present in our area the possibility of introducing that weed or weeds in an un-infested area is likely when the vehicle has not had the mud and dirt removed.

Finally, education is an important part of mitigating the impacts of weeds. Fire personnel need to be aware of the importance of managing weed populations and must be able to identify weeds so they can avoid them when possible, or at least be briefed concerning the presence of certain weeds they may encounter.

#### **Alternative A:**

The consequences of current management are similar to the consequences for the actions described for FMZ A and B of the proposed action. Mitigating measures for this alternative are the same as the proposed action and would be applicable for any level of suppression action, or prescribed burn.

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## **NON-CRITICAL ELEMENTS - ACCESS AND TRANSPORTATION**

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### **ACCESS AND TRANSPORTATION - Affected Environment:**



All areas within the Glenwood Springs Field Office are designated as Open, Closed or Limited to motorized vehicle use. There are several county, state and federal roads and highways that cross BLM lands. BLM lands are often crossed to gain access to Forest Service lands or private land for private, recreational and commercial purposes. Many areas, especially those designated as Open to motorized vehicles and those Limited to Existing Routes, have a proliferation of user created routes. Other areas, such as the Castle Peak Travel Management Area and the Roan Plateau have a system of BLM Designated routes. Travel off these routes without authorization is prohibited. Travel Management Planning over the entire Field Office will be done over then next several years. Areas that are currently Open are likely to become Limited to Designated Routes in the future.

## **ACCESS AND TRANSPORTATION - Environmental Consequences & Mitigation:**

### **Proposed Action:**

Temporary closure of roads and trails would impact the public by restricting their use of, or crossing of, public land. Impacts of fire suppression, such as hazard trees, obliteration of trails, impacts to road surfaces, may also impact transportation. However, most of these impacts will be mitigated in the rehabilitation of wildland fire suppression impacts (see Part 12).

Impacts could also occur as a result of fire personnel driving cross-country or off of designated routes. These areas would likely be used by the public and become well established over time. Mitigation for this is to require that fire personnel follow the current travel management regulations, unless authorization from the Field Office Resource Advisor is given. If new routes are created, they must be closed and rehabilitated in accordance with the rehabilitation plan.

### **Alternative A:**

Impacts and mitigation are the same as in the Proposed Action.

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## **NON-CRITICAL ELEMENTS - FOREST MANAGEMENT**

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### **Affected Environment:**

The Glenwood Springs Resource area has 17,905 acres of commercial forest land available for management and 82,470 acres of Pinion - Juniper woodlands that are suitable for production of commercial forest products, according to the Glenwood Springs Resource Management Plan,(RMP) Final Environmental Impact Statement Page P. 52. The forest land supports Engelmann Spruce/ Subalpine fir, Lodgepole pine, Douglas fir and Ponderosa pine forest types. The largest percentage is found in the Spruce/Fir and Lodgepole pine types. Aspen and Subalpine fir have not been important commercial species in the past. Over all there are 45,640 acres of commercial forest land and 214,310 acres of woodland, which includes Pinion - Juniper, Aspen, and Subalpine fir. In the most recent years an average of 200 vegetative sales permits have been issued annually. The timber sale program has been slowed in recent years due to limited milling capacity and environmental constraints. See The "Affected Environment" forestry section of the RMP, PP. 94- 96. The RMP identifies a sustained harvest of 1.7 million board feet annually. However this will be reduced by the subtraction of the King Mountain unit from the allowable cut base, since the King Mountain unit has been designated as a non-motorized area and is not available for the harvest of wood products.

Lodgepole stands on King Mountain are at the most risk for wildland fire occurrence. The stands are mature and over mature. A 90+ year old burn of approximately 800 acres in the King Mountain unit has a dog hair stand of Lodgepole that is very susceptible to another wildland fire. The Spruce-Fir stands are more fire resistant. The Aspen type is resistant to fire and the occurrence is low. The Pinion - Juniper stands are characterized by sparse understories and slow spreading wildland fires. However major wind driven or plume dominated wildland fires do occur when fire gets in the crowns where the crown cover is

continuous.

## **FOREST MANAGEMENT - Environmental Consequences & Mitigation:**

### **Proposed Action:**

Most of the commercial forest land falls within FMZs “B” and “C”. The proposed action in these FMZs will provide protection for existing timbered lands that are valuable for watershed, commercial timber, and wildlife cover. Negative impacts are largely mitigated in the FMP and or will be mitigated in prescribed fire plans.

Overall, the proposed action should improve the general health of the forest by improving age class distribution and reduce fuel loading. Over time, reduced fuel loading will reduce the probability of catastrophic fire and the probability of insect and disease epidemics in all FMZs. Vegetation treatments could also provide forest products when thinning and harvesting of trees are used to reduce fuel loading objectives.

Wildland fire use in “D” FMZs will reduce timbered lands available for harvest if wildland fire is allowed to play a more natural role in the ecosystem. However these areas are currently not being managed to provide forest products.

Pinion-juniper woodlands generally are within FMZs “C” and “D”. There is little opportunity for prescribed fire use since it requires a crown fire and a 20 mile/hour wind speed for fire to carry in most P/J stands, due to the normally sparse understories, and under these conditions control is very difficult. When vegetation type conversion is the resource objective in pinyon-juniper stands, and fuel wood harvest is feasible, this would be a preferred vegetation treatment from a forest products standpoint.

### **Alternative A:**

Aggressive fire management as currently practiced is not likely to impact forestry practices in the short term. Some wildland fires are likely to be quite large, in spite of suppression efforts, due to the difficulty of control. Over the long term, negative impacts are likely to accrue. The continued build up of fuels will increase the risk of catastrophic wildland fires.

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## **NON-CRITICAL ELEMENTS - GEOLOGY AND MINERALS**

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### **GEOLOGY AND MINERALS - Affected Environment:**

There would be no impacts to geology from the proposed action..

Mineral development within the plan area includes oil and gas facilities such as well site facilities, gathering and transmission pipelines, and compressor stations. Most of the oil and gas development has occurred west of Silt, Colorado.

### **GEOLOGY AND MINERALS - Environmental Consequences & Mitigation:**

#### **Proposed Action:**

A and B FMZs, would have little change in impact from the existing situation because wildland fire suppression would be aggressively suppressed as is now the case. Development in C FMZs have the most potential for impacts from wildland fire because there would be a varied suppression response. However, if any public land facilities, in any FMZ, are threatened by wildland fire, the wildland fire would be suppressed. No development currently exists in D FMZs.

**Alternative A:**

There would be no impacts, above those that occurred prior to the FMP, to geology and minerals if the current fire management strategy is continued.

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**NON-CRITICAL ELEMENTS - HYDROLOGY AND WATER RIGHTS**

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**HYDROLOGY AND WATER RIGHTS - Affected Environment:**

The management area lies within the upper Colorado River watershed. Major tributaries include the Eagle, Piney, Roaring Fork, Fryingpan and Crystal Rivers. These streams generally have high flows in late May or June of the year from snowmelt, with low flows in the winter when surface runoff is minimal. Many smaller streams are common throughout the area. These streams may have perennial, intermittent or ephemeral flow. The higher flow, or only flow in these systems in the case of the ephemeral drainages, generally results from intense thunderstorm runoff.

**HYDROLOGY AND WATER RIGHTS - Environmental Consequences & Mitigation:**

Modification to the timing and duration of flow would result from burning. This would result from changes to interception, infiltration, soil moisture storage, possibly snow accumulation, and snowmelt rate. The magnitude of impact would be a function of the type of vegetation burned, the intensity of burn, the size and pattern of the burn, precipitation pattern and quantity. An increase in both the quantity of runoff and the duration of the runoff period would occur. Flows would approach pre-burn averages about ten years after treatment. In forest types, increased discharges have been reported up to 70 years following treatment. There are instances that upland burns, have converted intermittent systems to perennial flow regimes. Given the relatively small treatment area compared to the total watershed area, conversion to a perennial system would generally not occur.

No water rights are included in the proposed action or alternatives, nor would existing water rights be expected to be impacted by either alternative. If a high peak flow event were to occur immediately following removal of vegetation through burning or other manipulation method, increased runoff, sediment, and/or ash could damage downstream water right facilities under. This damage to downstream water right facilities could occur with both alternatives, but would be more likely with Alternative A with the occurrence of more large wildland fires.

**Proposed Action:**

The impact to the hydrologic characteristics of the management area would vary from little to considerable long-term changes. Areas with small localized wildland fires would have minor hydrologic changes. In the larger burn areas, the hydrologic changes would be more dramatic and long-term, given the right burn, vegetative, and hydrologic characteristics. Since implementation of the proposed action over the long term should result in fewer large intense wildland fires, the negative impacts to the hydrology of watersheds should be reduced.

**Alternative A:**

The impact to the hydrologic characteristics of the management area would be variable. Areas with small localized wildland fires could have minor hydrologic changes. Over the long term, present management practices of putting wildland fires out as soon as possible results in a buildup of fuels and a shift to the vegetation types that are more volatile. This scenario has been taking place under the current management practices setting the area up for more large intense wildland fires that would have the more dramatic and long-term hydrologic impacts described above. Increased occurrence of

large intense wildland fires would also increase the risk of damage of water right facilities in the vicinity downstream.

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## **NON-CRITICAL ELEMENTS - LAND STATUS/REALTY AUTHORIZATIONS**

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### **LAND STATUS/REALTY AUTHORIZATIONS - Affected Environment:**

Numerous rights-of-way including linear and site-type, buried and surface, are scattered throughout the resource area. Many areas exist where oil and gas or communication facilities are concentrated.

### **LAND STATUS/REALTY AUTHORIZATIONS - Environmental Consequences & Mitigation:**

#### **Proposed Action:**

Generally, only above-ground facilities may be at risk from fire events. In particular, power and telephone poles would be vulnerable, as would pedestals related to buried phone cables. While most building complexes, such as compressor stations and communications sites, tend to keep surrounding vegetation to a minimum, these structures may also be at risk. The location of these types of facilities should be identified to the extent practicable by the resource advisor and initial attack personnel. The resource advisor should contact the lands staff if above-ground facilities are located in the area of a wildland fire in any zone, so that the facility's owners can be notified of the situation. Names and phone numbers are also frequently posted on site.

#### **Alternative A:**

The impacts for this alternative would generally be the same as under the proposed action.

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## **NON-CRITICAL ELEMENTS - RANGE MANAGEMENT**

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### **RANGE MANAGEMENT - Affected Environment:**

The majority of public lands within the Glenwood Springs Field Office area are incorporated into grazing allotments and are managed for livestock grazing. The level of management varies depending upon such things as the amount of public land involved, resource conditions, resource concerns and public interest. There are 256 allotments within the Glenwood Springs Field Office area with the allotments ranging in size from 7 acres to 18,900 acres. The Field Office area goes from Debeque to the Eagle - Wolcott area and into Routt County with elevations ranging from approximately 5000 feet in the Debeque area to approximately 10,000 feet in mountainous areas with annual precipitation ranging from 8 - 20 inches per year, depending on elevation. The variety and elevation differences within the resource area produces a wide range of plant communities. See the "Affected Environment , Vegetation" section of the Glenwood Springs Resource Management Plan, Final Environmental Impact Statement", page 93.

Allotments that are intensively managed have specific vegetative objectives established by an Allotment Management Plan or allotment evaluations. In addition, vegetation utilization objectives have been established on all allotments that have had grazing permits renewed since 2000.

Overall fire has had a positive role in rangeland management and the GSFO has used prescribed fires improve livestock forage, the diversity of plant community types and the diversity of seral stages within plant community types. Past fire suppression has resulted in a large percentage of late seral stages for each different plant community. Generally this has resulted in a reduction in vegetative diversity and livestock forage.

## **RANGE MANAGEMENT - Environmental Consequences & Mitigation:**

Fire can increase the diversity of plant community types and the diversity of seral stages within plant community types. These results generally improve rangeland health and benefit range management. Exceptions would be an excessive shift to lower seral stages for each plant community or substantial increases in cheatgrass, weeds or other undesirable vegetation. It is more likely that diversity of seral stages within plant community types would occur with the proposed action and the quality and quantity of forage available for livestock would improve.

The immediate loss of forage and the effects of temporary use restrictions following fire would vary with the individual permittee, depending on the size of the area burned and the operator's flexibility in his/her operation. The immediate loss of forage and the effects of temporary use restrictions following wildland fires would occur with both alternatives. The temporary loss of forage and the effects of temporary use restrictions would generally be greatest under the proposed action in D FMZs, because larger areas are likely to burn and for longer periods. However, range management and grazing permittees should benefit in the long term from increased forage production and accessibility for livestock.

Under both the proposed action and alternative A, prescribe fire will continue to serve as a useful tool for rangeland management in B, C and D FMZs.

Monitoring will be an important component of this process. Monitoring will help determine if fire management is leading us towards our vegetative objectives including desired species composition, seral stage diversity, plant community representation and the avoidance of undesirable vegetation. The monitoring of these components may result in changing the fire management category for that area or future management. A periodic review of current vegetative conditions on a local and landscape level is important to this process.

The Interagency Burned Area Emergency Stabilization and Rehabilitation Handbook applies to post-fire livestock management.

### **Proposed Action:**

Under the proposed action, land managers can use wildland fires for resource benefit in D FMZs. Having both wildland fire use in D FMZs, and prescribed fires available for vegetative management, managers will have more flexibility in reaching vegetation goals which benefit livestock management.

Grazing allotments, or portions of grazing allotments, could experience short term negative impacts from wildland fire use in D FMZs. Permittees potentially may experience short-term, temporary use restrictions in areas where wildland fires are permitted to burn. However, the cumulative impact of the proposed action will be positive for range management in the long-term because it will likely increase increased forage productivity.

### **Alternative A:**

Alternative A limits the use of wildland fire in relation to vegetative management in D FMZs. The current management of suppressing all wildland fires, and only utilizing prescribed fire, has generally resulted in a more wooded landscape. Fire suppression has limited species composition, reduced seral stage diversity, and lowered plant community representation. Some areas have little or no forage available for livestock in the understory.

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## **NON-CRITICAL ELEMENTS - RECREATION**

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### **RECREATION - Affected Environment:**

Recreation in the resource area consists of a variety of outdoor, resource based activities. The most popular of these include river floating and fishing, hunting, camping, Off Highway Vehicle (OHV) use, mountain biking and scenic driving. The Glenwood Springs Field Office manages these activities through special recreation permits, camping and picnic facilities, road and trails, informational signs and bulletin boards. The RMP designated Special Recreation Management Areas (SRMA) for Bull Gulch, Hack Lake, Upper Colorado River and Deep Creek. The 1997 Castle Peak Travel Management Plan amendment added Bocco Mountain and Gypsum Hills SRMAs. The Red Hill RMP amendment added the Red Hill SRMA.. Four SRMAs: Red Hill, Bull Gulch, Thompson Creek and Hack Lake are managed to provide non-motorized recreational opportunities.

Burned or seeded areas may be temporarily closed to the public (43 CFR 1840.11) by excluding vehicle, bicycle, horse, and foot use if unacceptable resource damage would occur or if danger to the public is present due to fire damage or rehabilitation activities. Such closures require following the NEPA process and issuing a Federal Register Notice and sufficient public notices.

## **RECREATION - Environmental Consequences & Mitigation:**

### **Proposed Action:**

Recreational use in A, B and C FMZs would be generally impacted as has occurred historically. Management actions such as visitor evacuations and entry restrictions would continued to be instituted. Long duration wildland fire use in D FMZs could result in extended visitor use restrictions in areas affected by the wildland fire event. From a long term perspective, impacts on visitor use could diminish as hazard fuels are removed and the chance of a large catastrophic wildland fire, that could prominently alter the recreational setting and visitor experiences, are reduced.

Impacts of suppression efforts, such as hazard trees, obliteration of recreational trails, erosion of hillsides, may impact visitor use. However, most of these impacts will be mitigated in the rehabilitation plan and rehabilitation of wildland fire suppression impacts (see FMP Part 12).

Prescriptive treatments with the potential to disrupt visitors, should avoid high use areas and occur outside of high use seasons, such as the fall big game rifle hunting seasons (see FMP Part 15). There will be more specific instances of short-term visitor use restrictions, due to the inclusion of restrictions placed on public entry into prescribed fire project areas. These restrictions would be of short duration, generally two to four days and the restrictions would be for a specific site project not a general area. The timing of visitor use restrictions due to mechanical fuels reduction projects and prescribed fire projects can be determined by project managers, this is not the case for wildland fire suppression actions.

### **Alternative A:**

Impacts to recreational use from Alternative A are substantially the same as those in the proposed action for A, B and C FMZs. In D FMZs, wildland fire would be suppressed and the fire event generally shorter and the visitor use restrictions shorter in duration. However, the long term benefits of allowing fire to play a more natural role in the ecosystem would not be achieved due to full suppression efforts in all areas. Fuel loading and potentially larger catastrophic wildland fires could occur which would prominently alter the recreational setting and visitor experiences.

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## **NON-CRITICAL ELEMENTS - SOILS**

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### **SOILS - Affected Environment:**

Soils within the GSFO project area have been mapped by the NRCS in Order III Surveys; Aspen-Gypsum Area (1992), Douglas Plateau Area (1988), Mesa County Soil Survey (1990), and the Rifle Area (1985).

A soil survey for the GSFO area in Routt County has not been completed at this time.

The semi-arid climate is a primary influence on soil development in the dryer sites in the GSFO. These areas are located along the Colorado River corridor west of Glenwood Springs and in the rain shadow along the Colorado River and Eagle River corridors east of Glenwood Canyon in Eagle County. Low annual precipitation, hot summer temperatures and high evaporation rates slows the chemical and biological processes needed for soil development and production of vegetation. Predominately shale, sandstone, and evaporate parent material coupled with very active geologic erosion are also inhibiting soil potential. Productivity in semi-arid terrain often limits fuel loading and continuity and therefore limits the size of wildland fires.

In the mid-elevations where most of the public land in the GSFO area is located, annual precipitation increases and soil potential is limited more by depth to bedrock and steep slopes. Most of the soil in this area is productive and produces a sufficient amount of fuel to carry fire during typical summer conditions. A large percentage of this area has a vegetative cover dominated by brushy vegetation (sagebrush and mountain brush) and low growing trees (pinyon/juniper) that are susceptible to burning during dry periods. This mid-elevation area is where most of the natural fire starts occur and most of the large intense wildland fires have occurred in the GSFO. The mid-elevation area is also where most of the GSFO prescribed burns have been conducted.

In the higher elevations, precipitation up to 30 inches annually does not limit soil development. Soils are typically deep, well developed, and productive. Soil potential may be limited by depth to bedrock and steep slopes. Aspen, dark timber, and mountain meadow vegetation is typical of this high elevation area. Fuel loading is typically sufficient to carry fire starts, but fuel moisture often limits fire size. Few large wildland fires have historically occurred in the higher elevations in the GSFO area.

Many soils throughout GSFO area are termed "fragile" in that they have shallow depth to bedrock, minimal surface layer organic material content and structure, soil textures that are more easily detached and eroded, or are on slopes over 35 percent. The soil map unit descriptions rate all soils in the resource area as to their susceptibility to water erosion. Wind erosion may also be a hazard, particularly when surface litter and vegetation is removed by fire. The four Water Quality Management Areas shown in the Glenwood Springs Resource Management Plan (WQMA) highlight extensive area with fragile soils that contribute elevated levels of sediment and chemicals, primarily salinity, that degrades water quality. In addition, the RMP has a Debris Flow Hazard Zone around Glenwood Springs and several Erosion Hazards Zones designated where accelerated erosion problems could result if vegetation is removed through manipulation or wildland fire on fragile soils. The RMP calls for monitoring water quality on these four fragile soil watersheds to determine the effects of planned vegetation manipulations or wildland fire. Critical Watershed Areas include the Municipal Watersheds of New Castle and Rifle, a Debris Flow Hazard Zone around Glenwood Springs, and several Erosion Hazard Areas scattered through the FO area. The RMP objectives and management recommendations are described in the Water Quality, Surface or Ground section of this EA.

The following soil /slope characteristics are indicative of a potentially fragile soil or high erosion hazard:

- 1) Soils rated as highly or severely erodible by wind or water, as described in NRCS soil survey reports.
- 2) Soils on slopes >35%, particularly if they have one of the following soil characteristics: (a) a surface texture that is sand, loamy sand, very fine sandy loam, fine sandy loam, silty clay, or clay; (b) a depth to bedrock that is <20 inches; c) an erosion hazard rating of high or very high; and (d) a K (soil erodibility potential) factor > 0.32.

#### **SOILS - Environmental Consequences & Mitigation:**

Factors influencing soil condition after a fire include vegetation type and condition, soil texture, duration of the fire, and heat intensity. Fire may temporarily reduce soil moisture content, expose mineral soil surface to full raindrop impact, destroy organic matter and biota, and, if hot enough, even

seal the surface layers to moisture penetration and biologic activity. Removing the protective vegetative cover exposes bare soil to wind and water erosion, and increases the potential for erosive runoff events and sediment production. This decreases soil productivity, and sediment fills stream channels, ponds, and other low-lying areas. Following a fire, temperature of the unshaded, blackened soil surface is appreciably increased. This increase in soil temperature may create unfavorable conditions for seed germination and seedling survival. It may also initiate earlier vegetation growth in the spring if moisture conditions are favorable.

The significance of these potential impacts is dependent on climatic conditions during the time following a fire and prior to successful reestablishment of vegetation. With successful site rehabilitation, the soil susceptibility to accelerated erosion usually undergoes a considerable reduction after the first growing season.

Soil disturbance and compaction from vehicular traffic, construction of fire lines, and new road construction are some of the additional impacts associated with fire/fuel management. With implementation of a FMP, however, these impacts are likely to be minimized through planning and a reclamation plan that may include silt fences or sediment barriers where appropriate, timely seeding, and restoration of dozer cuts, new roads, and other soil disturbance. Also, the ability to manage wildland fires for resource benefit may provide further opportunity to improve soil potential and conserve the soil resource.

In much of the semi-arid area, fuel loading is light enough to limit the spread of wildland fires. After burning, the mid-elevation and high elevation areas have a high probability of producing considerable erosion and sediment. Ash and other debris often clogs stream channels adding to the erosion potential should a high flow event occur before vegetation reestablishes.

#### **Proposed Action:**

Implementation of the fire plan would have some initial negative impacts on soils. Increases in the amount of vegetation manipulation to reduce fuel hazards would expose more soils to the potential to accelerated erosion from vehicular traffic, fireline construction and removal of the protective vegetative cover. Vegetation would be expected to recover within one year, and composition of the grass and forb component of the vegetative cover would be expected to increase. Prescribed burns would be conducted when burning conditions are less intense and vegetation recovery time is shorter than during wildland fire conditions. Prescribed burning will reduce fuel loading, fire intensity and fire size which will reduce the negative impact to soils. The amount of soil erosion would be expected to decrease over the level prior to manipulation since grasses and forbs have been shown to protect soils better than brush and tree and to reduce sediment yield from these manipulated areas. In the long term, vegetation would recover with more grasses and forbs. The four "D Zone" areas in GSFO where wildland fires will be allowed to burn under prescribed conditions are primarily at high elevations where large intense wildland fires have not historically occurred. Therefore the negative impacts that large intense fire have on soils would be avoided in the "D Zones" under let burn conditions.

#### **Alternative A:**

Although wildland fires would still be managed appropriately, soil impacts attributable to vehicular traffic, fire line construction, and other fire management activity, would continue to adversely affect soil resources to a greater degree than would occur with proposed management. Fire suppression actions would be employed to a greater degree than under the proposed action, and suppression-related soil impacts would be greater. In the long-term, continued suppression of the majority of wildland fires that occur may increase the potential for a fire of greater size, intensity, and ability to cause severe soil resource damage. Mitigation after wildland fires that occur under extreme conditions and which affects a larger land area, may not be adequate or in time to mitigate the negative impacts associated with such a wildland fire. In addition, wildland fires of this size are usually associated with larger suppression crews which may exacerbate suppression-related soil impacts.



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## NON-CRITICAL ELEMENTS - VEGETATION

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### VEGETATION - Affected Environment:

The public lands within the planning area consist of eight major plant communities: riparian communities, salt desert shrub, sagebrush, pinyon-juniper woodlands, Gambel oak/mountain shrub, aspen, Douglas-fir and spruce-fir. These areas have different fire histories and fire responses.

#### Riparian

Riparian communities (which require free water or moist conditions) exist along intermittent and perennial streams, around ponds and springs, and in seeps and bogs. Riparian species vary depending on elevation, substrate and stream channel characteristics. Rio Grande cottonwood (*Populus deltoides* ssp. *wislizenii*), coyote willow (*Salix exigua*), and red-osier dogwood (*Cornus sericea*), occupy lower elevations, while narrowleaf cottonwood (*Populus angustifolia*), water birch (*Betula occidentalis*), alder (*Alnus incana*), and Blue spruce (*Picea pungens*) are more characteristic of higher elevations. Wood's rose (*Rosa woodsii*), and numerous species of willows (*Salix* spp), sedges (*Carex* spp) and rushes (*Juncus* spp) are common throughout the elevational range.

Fire starts are not common in riparian areas due to their low topographic position and wildland fires rarely spread into riparian areas because the amount of moisture generally present in the vegetation suppresses fire spread. However, under dry conditions, riparian areas can burn severely because of the accumulation of fuels.

Little information is available on the effects of fire or lack of fire on riparian systems. There is no evidence to indicate that fire is necessary to maintain riparian vegetation. In addition, tamarisk has invaded some riparian communities, particularly at the lower elevations and where natural flow regimes have been altered. Fire is not desired in these areas because it increases the dominance of tamarisk on the site. Precipitation events that occur soon after fire may result in erosion and channel alteration.

#### Salt-Desert Shrub

The salt-desert shrub community is typically located at lower elevations, often on saline or alkaline soils. Annual precipitation averages below 10 inches. The dominant species are shadscale (*Atriplex confertifolia*), Gardner's saltbush (*Atriplex gardneri*), black greasewood (*Sarcobatus vermiculatus*), big sagebrush (*Artemisia tridentata* ssp. *tridentata* and *Artemisia tridentata* ssp. *wyomingensis*) and a variety of grasses and forbs. Thicker growth occurs on moist aspects and valley bottoms, while drier aspects are virtually bare of vegetation, resulting in very discontinuous vegetation cover.

The saltbush species that occur in this vegetation type do not sprout in response to fire. Greasewood sprouts readily in response to fire, but is thought to burn infrequently because of the lack of fuels and fuel continuity in most stands. Because of the sparse ground cover and position low in the landscape away from much lightning activity, this vegetation type is unlikely to burn. Fire in this community was probably quite infrequent historically. However, the spread of cheatgrass has increased the fire probability of some areas. In addition, where cheatgrass is present, it generally increases in dominance following fire and inhibits regeneration of native perennial species.

Cheatgrass is an invasive annual weed which dominates many former grasslands, brushlands, and woodlands throughout the Great Basin and Inter-mountain region. Although cheatgrass invasion is a considerable problem to the west near Grand Junction, the planning area does not currently have great expanses of cheatgrass-dominated rangelands. Cheatgrass is present and occasionally dominant in the salt-desert shrub, sagebrush and pinyon-juniper woodland communities but does not drive the fire regimes in these areas. Fire and other surface-disturbing activities tend to favor establishment and expansion of cheatgrass.

## Sagebrush

The big sagebrush type generally occurs at elevations between 5,000 and 9,000 feet. There are three different subspecies of big sagebrush in the planning area: Wyoming big sagebrush, Basin big sagebrush and Mountain big sagebrush. Each subspecies occupies its own ecological niche. Wyoming big sagebrush tends to grow on the shallowest, most well-drained, and hottest sites. Basin big sagebrush tends to occupy the deepest, most fertile soils, and mountain big sagebrush tends to occupy moderately deep soils that are wetter and cooler than those occupied by Wyoming big sagebrush (Beetle, 1977).

Wyoming big sagebrush commonly occurs with green rabbitbrush, shadscale, Sandberg bluegrass, western wheatgrass, and bottlebrush squirreltail. Wyoming big sagebrush is most common on foothills, terraces, and slopes at elevations ranging from 5,000 to 7,000 feet.

Basin big sagebrush commonly grows in association with rubber rabbitbrush, needle-and-thread grass, blue bunch wheatgrass, and Sandberg bluegrass between 4,500 and 8,000 feet. Basin big sagebrush is a climax dominant on semiarid sites.

Mountain big sagebrush usually occurs in the upper elevational range of the big sagebrush zone (7,000 to 9,500 feet) in montane valleys and on foothills, slopes and high ridges. Common plant associates include mountain snowberry, green rabbitbrush, serviceberry, Kentucky bluegrass, and Letterman's needlegrass.

Big sagebrush steppe communities historically had low fuel loadings and are characterized by 15- to 70-year interval, patchy wildland fires that produced a mosaic of burned and unburned lands. Fires were somewhat more frequent in mountain big sagebrush and less frequent in Wyoming big sagebrush communities. Fire regimes have been altered in many sagebrush communities due to livestock grazing, fire suppression, and invasion by cheatgrass.

Some sagebrush stands are considered climax communities, whereas others are considered a seral stage in the evolution of pinyon-juniper woodland, as the trees eventually out-compete sagebrush and become dominant on a site in the absence of fire. Many sagebrush communities in the planning area, particularly where Wyoming big sagebrush occurs, are being invaded by pinyon-juniper trees. As the trees mature, the combined effects of shading, root competition and phenolic compounds in the trees cause the sagebrush and associated herbaceous understory species to decline. As the pinyon-juniper communities approach a climax seral stage, understory grasses, forbs and shrubs may become very sparse.

Before fire suppression and heavy livestock grazing began, fire was an important factor maintaining boundaries between pinyon and juniper associations and nearby grass or shrub communities. Fire, along with drought and competition, frequently limited pinyon and juniper to rocky ridges, where their deep tap roots could obtain moisture from deeper levels than those reached by fibrous grass roots and the moderately deep shrub roots (Crane, 1982).

Big sagebrush does not usually survive fire and the shrubs do not resprout after fire. Sagebrush re-invades a site primarily by off-site seed or seed from plants that survive in unburned patches. Sagebrush will be mostly absent for 5 to 25 years. The rate of recovery depends on the size and season of the fire, the availability of seed, post fire precipitation and competition from other plants.

## Pinyon-Juniper Woodlands

Pinyon-juniper woodlands most commonly occur between 5,000 feet and 7,500 feet, where annual precipitation ranges from 10 to 18 inches. These woodlands are located on dry, rocky hillsides, canyons and foothills below the mountain shrub type. Pinyon-juniper communities are found on a range of soil textures, but most often on gravelly loams and gravelly clay loams. Within the pinyon-juniper woodland, pinyon composition increases with increasing elevation or on the moister, northern aspects.

The major overstory species are Colorado pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*). Deciduous shrubs such as Utah and saskatoon serviceberry (*Amelanchier utahensis* and *Amelanchier alnifolia*), true mountain mahogany, (*Cercocarpus montanus*), big sagebrush (*Artemisia tridentata*), and Gambel oak (*Quercus gambelii*) occur within higher elevation stands, on cooler aspects, or in earlier seral stages. Primary associated grasses and forbs include: muttongrass (*Poa fendleriana*), Indian ricegrass (*Acnatherum hymenoides*), bottlebrush squirreltail (*Elymus elymoides*) and rock goldenrod (*Petradoria pumila*). Pinyon pines and junipers compete more efficiently for soil moisture than do herbaceous or shrubby understory plants; therefore, over time, pinyon-juniper trees are more likely to increase in canopy cover and dominance, while understory plants decrease. Pinyon-juniper woodlands are a climax community.

Little information is available regarding fire return intervals in the pinyon-juniper vegetation type in Colorado. Fire return intervals vary widely based on local lightning frequency, tree density, and understory characteristics. Ground fires usually kill only trees under three or four feet in height (Crane, 1982), whereas crown fires, the type that typically occur in mature stands with sparse understories, kill all age classes. Fire intervals for ground fires are estimated at 10 to 30 years. The fire return interval for high-intensity, crown fires ranges from 75 to 300 years.

Across the West, pinyon-juniper woodlands have expanded their historical range since European settlement especially into sagebrush-grass communities below areas of traditional pinyon-juniper. Overgrazing, fire suppression, and climatic change have been identified as the primary causes of juniper invasion. In the absence of fire or other disturbances, trees eventually dominate the site and crowd out herbaceous and shrub species.

#### Gambel Oak/Mountain Shrub

The mountain shrub type exists in slightly wetter precipitation zones or on northern aspects at elevations ranging from 6,000 to 9,500 feet. The major overstory species are Gambel's oakbrush (*Quercus gambelii*), serviceberry (*Amelanchior utahensis* and *Amelanchior alnifolia*), big sagebrush (*Artemisia tridentata*), and true mountain mahogany (*Cercocarpus montanus*), while understories often contain snowberry, grasses, sedges, vetches and other forbs. This vegetation type frequently occurs on steep slopes, where it forms a shrub thicket. On flatter areas with deeper soils, Gambel's oakbrush can form a small tree, leaving the understory open and dominated by herbaceous species. On some sites, pinyon pines and Utah juniper can invade with prolonged absence of fire. Mountain shrub habitats provide food and shelter for many wildlife species.

There is little information about fire history in oak and mountain shrub stands, since fire rarely leaves visible scars. Fires can be large and intense in dry years because of the heavier ground cover and steeper slopes where it occurs. Under less dry conditions, fires may burn the litter and ground fuels without consuming the larger shrubs. Gambel's oak is very fire tolerant and usually sprouts vigorously after burning, increasing the density of previously open stands and merging scattered stands into continuous thickets (Brown, 1958). Tree forms may survive low-severity fire. Serviceberry, mountain mahogany, and snowberry are top-killed by fire, but generally sprout vigorously following fire.

#### Aspen

Quaking aspen occurs in mesic areas at elevations ranging from 8,000 to 10,500 feet. Primary associated overstory species include aspen (*Populus tremuloides*), Engelmann spruce (*Picea engelmannii*), and subalpine fir (*Abies lasiocarpa*). At its lower altitudinal limit, aspen may be associated with lodgepole pine or Douglas-fir. Aspen communities contain a diverse herbaceous component.

Fuels are usually more moist in quaking aspen stands and quaking aspen stands often act as natural fuelbreaks. When fires do occur, they tend to burn with low intensity through the understory. Fire will kill the above-ground portion of the plant but the well protected roots will be stimulated to send up suckers. A moderate to severe fire can rejuvenate a deteriorating stand.

There has been a great reduction of fire rejuvenation of quaking aspen in the West since about 1900. Extensive young stands of quaking aspen are uncommon in the West. Conifers now dominate many older seral quaking aspen stands. In an aspen climax site, a mixed age stand can be self-perpetuating without fire. In areas where aspen is in a seral stage in the evolution of conifer stands, fire that kills the conifers and stimulates aspen root growth is necessary for aspen to maintain site dominance.

### Douglas Fir

Douglas-fir habitat types in the planning area occupy cooler north or east-facing slopes at lower and middle elevations. Mature trees can survive moderately severe ground fires because the lower tree is covered by thick, corky bark. Fire regimes in moist Rocky Mountain Douglas-fir habitat types are variable, ranging from low to moderate surface fires at relatively frequent intervals to severe crown fires at long intervals. Following a fire, the light seed is carried by the wind as much as half a mile away, allowing Douglas-fir to readily reestablish following a disturbance (Arno, 1977). Moist Douglas-fir forests have not been greatly altered by fire suppression since fire frequency is naturally low.

### Spruce-Fir

This coniferous forest type exists at higher elevations receiving 20 inches or more of precipitation annually. Engelmann spruce (*Picea engelmannii*) and subalpine fir (*Abies lasiocarpa*) are the major species.

Engelmann spruce and subalpine fir are very fire sensitive and generally suffer high mortality even from low intensity fires. Fire in spruce-fir forests is typically high intensity and stand replacing. Fire intervals are variable, ranging from decades to centuries, with longer intervals being more typical. Generally reestablishment is variable. Large severe fire will destroy much of the seed source. Small burns with adjacent surviving trees may reestablish within 5-10 years. Once fire does occur, a brief period of grass-forb dominance takes place, often followed by aspen, which may dominate the site for many years in the absence of competing conifers.

## **VEGETATION - Environmental Consequences:**

### **Proposed Action:**

Under the proposed action, vegetation in the planning area will be positively impacted by the potential increase in the use of natural and prescribed fire and vegetation treatments. The proposed FMP is intended to restore, or replicate as closely as possible, the natural disturbance effects that fire once had on the vegetation.

The impact of fire on the vegetation varies depending on the individual plant species present as well as the composition of the plant communities. Each plant species has a fairly predictable response to fire and each plant community has a definable fire regime under what are termed "natural conditions". However, the "natural" historical conditions exist in few areas today. The influences of man's activities have altered the vegetative communities across the landscape. Livestock grazing, water developments, road construction, recreation, 100 years of fire suppression, and the introduction of exotic plant species have all affected the composition of the vegetative communities and their response to fire.

In some communities, these activities have created conditions in which many plant communities have very high fuel loading. Natural fires in these areas may create hotter, more intense conditions than normal which may sterilize the soil and set the plant community back to an early seral stage for a long period of time. Other areas have less understory than they used to and natural fires can no longer carry through these communities. Many areas have invasive, exotic species such as cheatgrass and tamarisk that are adapted to shorter fire intervals than the native species and increase the fire intervals over the natural situation. These invasives also readily resprout following fires and may outcompete the native species in the landscape.

Although fire is an important regenerative force on the landscape, restoration of fire to its “natural fire regime” will not create the same effects that were produced historically. The current altered conditions need to be taken into account when considering the use of fire or any vegetative treatment across the landscape. The GSFO FMP contains mitigating measures designed to avoid or minimize negative impacts associated with fire and fire suppression activities. The Fire Zone Categories of A, B, C, and D identify areas where fire would have a negative impact and should be excluded as well as areas where fire would be largely beneficial, would create few resource concerns, and should be encouraged. The Fire Plan is intended to be flexible, allowing for changes in management zones, objectives, and constraints in response to monitoring data and information regarding the number of acres treated each year, and the cumulative acres treated in each landscape.

In general, in vegetation types that have adapted to fire, vegetation will benefit from the removal of decadent, old age classes, allowing younger, more vigorous age classes to increase across the landscape. Other vegetation types that are fire resistant, but are now being invaded by woody species (e.g. sagebrush-grasslands invaded by pinyon and juniper trees), will benefit from the removal of the invading species and the creation of more area suitable for their growth. Vegetation types that are not fire resistant (e.g. pinyon-juniper woodland and coniferous forest) will be reduced in areal extent across the landscape. The cover of these vegetation types will more closely reflect the natural range of variation in their abundance. Vegetation types that typically do not burn, such as the salt-desert shrub or barren areas, should not be significantly impacted. The exception is in those salt-desert shrub communities in which cheatgrass has become dominant. Cheatgrass becomes highly flammable after it cures and its presence may increase the likelihood of fires in these communities that are not adapted to fire. Where cheatgrass is present, its abundance and dominance usually increase after fire, which may out compete the native species.

The cumulative effect of implementing the FMP, in conjunction with other management activities, should result in a vegetation mosaic across the landscape which will reduce the likelihood of large-scale insect and disease epidemics, the probability of catastrophic fires, and the vegetation destruction that these entail.

The FMP is designed to achieve the conditions for healthy plant communities described in Colorado Land Health Standard #3. For example, plant communities would be present in mixed age classes sufficient to sustain recruitment and mortality fluctuations and landscapes would be composed of several plant communities that are in a variety of successional stages and patterns. In addition, the mitigating measures on fire and fire suppression tactics identified in the Plan will help reduce the spread of noxious weeds and invasive exotics, and reintroduce native species where seedbanks have become depleted as a result of past management practices.

#### **Alternative A:**

The Continuation of Current Management Alternative, which involves continuation of the present fire management strategy of suppressing all wildland fires, would negatively impact many vegetation types in the planning area. Continued suppression of all wildland fires would result in an increase in older, more decadent vegetation. Age class diversity and vegetative vigor would decline, seedbanks would become depleted and hazardous fuel loads would accumulate. This would increase the potential for larger, hotter fires that may sterilize the soil and promote the increase of invasive, nonnative species.

Under this alternative, pinyon-juniper woodlands would continue to spread and age, leading to increased fuel loading, and a reduction in understory vegetation. The woodland stands would become more vulnerable to infestations or disease and to catastrophic fires. The sagebrush vegetation type would continue to age, resulting in a decline in plant vigor and production, a reduction in herbaceous species, and invasion by trees. The mountain shrub vegetation would be dominated by old age class, low vigor shrubs with fewer herbaceous species. Seral aspen stands would eventually be converted to coniferous tree types with loss of understory productivity and aspen sprouting potential. The dominance of conifers in the higher elevations would increase, leading to increased likelihood of catastrophic stand-replacing fires. The increased likelihood of large, catastrophic fires increases the

chance that riparian communities would burn, which may result in the loss of old cottonwood stands or the spread of tamarisk. No impacts from continued fire suppression are anticipated in the salt-desert shrub vegetation.

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## **NON-CRITICAL ELEMENTS - VISUAL RESOURCES**

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### **VISUAL RESOURCES - Affected Environment:**

Visual resources within the Glenwood Springs planning area were evaluated and identified in the Glenwood Springs Resource Management Plan in 1984, pg. 38. Visual resource management (VRM) objective is to maintain existing visual quality throughout the resource area and to protect unique and fragile resource values.

VRM Class I is assigned to those areas where a management decision has been made to preserve a natural landscape. This includes areas such as national wilderness areas, the wild section of national wild and scenic rivers, and other congressionally and administratively designated areas where decisions have been made to preserve a natural landscape.

Within the Glenwood Springs planning area three VRM Class I areas were identified. This classification is for the highest scenic quality and it is to preserve the existing characteristic landscape and allows for natural ecological changes only. Landscape modification activities should be restricted in these areas. The following areas are managed under VRM Class I; Deep Creek-2,470 acres; Bull Gulch -10,214 acres, Thompson Creek - 4,286 acres. These VRM Class I areas overlap with those areas ACEC designations.

VRM Class II areas (approx 225,106 acres) are managed to retain the existing characteristic landscape. The level of change in any of the basic landscape elements due to management activities should be low and not evident. Most of the Glenwood Springs VRM Class II areas have high visual exposure and sensitivity. Many of the VRM Class II areas are important and serve as key viewsheds for communities and major travel corridors. Landscape modifications in these areas would be prominent and noticeable from many places.

During wildland fire suppression, wildland fire use and when prescribing vegetation treatments, visual qualities in Visual Resource Management (VRM) Class I and II areas need to be considered. Smoke and visible on the ground activities are two direct impacts to visual resources from fire and vegetation management.

### **VISUAL RESOURCES - Environmental Consequences & Mitigation:**

#### **Proposed Action:**

The proposed action with the; resource area wide recommendations and restrictions, vegetation treatment guidelines found in Part 15 of the FMP, and the smoke management techniques and procedures found in Part 5 of the FMP should mitigate affects to VRM objectives. Under the proposed action it is likely that short term impacts from smoke to scenic values will increase due to increase use of wildland fire. Short term impacts from wildland fire use could include modifications to the landscape during suppression activities, smoke, and alteration in color, line, form and texture in the landscape. However most of these modifications are part of a natural ecological process and will be short term only. In addition, with the resource area wide rehabilitation recommendations these impacts should be minimal.

The cumulative impact of the proposed action should be positive in the long term because of reduced fuel loads and lower risks of large, catastrophic wildland fires which could alter the visual resources within the planning area.

### **Alternative A:**

The impacts to Visual Resources under Alternative A would be long term and cumulative. Impacts to visual resources could occur if current management continued where all wildland fires are suppressed. Fuel loading and consequently larger catastrophic wildland fires could occur which could alter visual resources.

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## **NON-CRITICAL ELEMENTS - WILDLIFE, AQUATIC**

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### **WILDLIFE, AQUATIC - Affected Environment:**

The GSFO planning area contains a number of streams, small lakes, reservoirs, ponds, and springs that support aquatic life, the vast majority of which are coldwater fisheries comprised of rainbow, brook, brown, and cutthroat trout. Other aquatic species include salamanders, frogs, toads, snails, and a variety of crustaceans and aquatic invertebrates. Few streams are located entirely on BLM lands, the majority are located on a mixture of BLM, USFS, and Private lands.

The larger notable waters in the planning area include the Colorado, Eagle, and Roaring Fork Rivers. These rivers, in addition to trout, contain native species including mountain whitefish, roundtail chub, flannelmouth sucker, and the endangered Big River Fishes - addressed in the T & E section above. Non-native species are also common and include carp, channel catfish, bass, and red shiners, among others.

### **WILDLIFE, AQUATIC - Environmental Consequences & Mitigation:**

#### **Proposed Action:**

Overall, aquatic species should benefit from the implementation of the FMP. The reduction of hazardous fuels will also reduce the potential for large catastrophic fire events that could significantly impair water quality and increase erosion. Vegetative treatments will help to improve upland habitat conditions that will minimize erosion concerns and will reduce sedimentation and water quality concerns. In addition, studies have shown that large wildland fires are important to maintain and provide long-term stream habitat complexity that can benefit instream biodiversity (Everest et al. 1987. Reeves et al. 1995).

#### Direct Effects

Wildland fires and related suppression actions can impact aquatic species. In particular the use of fire retardant can result in immediate and direct impacts to aquatic life. Fire retardant when mixed with water and exposed to UV radiation, breaks down to form hydrogen cyanide (HCN), which is extremely toxic to aquatic life. In addition, Ammonia (NH<sub>3</sub>), which is highly soluble will result when retardant is placed into water. When ammonia dissolves in water a chemical equilibrium is maintained between ammonia, which is toxic, and ionized ammonia (NH<sub>4</sub><sup>+</sup>) which is less toxic. The chemical balance between these 2 forms of ammonia is determined by pH, temperature, and total ammonia concentration. In most streams, the pH is sufficiently low and NH<sub>4</sub><sup>+</sup> predominates. However, in highly alkaline waters, NH<sub>3</sub> concentrations increase and can reach toxic levels. Ammonia in the range of 0.2 to 2.0 mg/L can be lethal to fishes. The toxicity of retardant to aquatic life is generally due to these two components (free cyanide and ammonia).

The US Fish and Wildlife Service and the National Marine Fisheries Service have concerns about the toxicity of different retardant and foam products. These agencies are working to analyze retardants and foam and their use. The toxicity varies according to the product, and certain species and certain age and size classes of some species are especially vulnerable. The guidance will vary as new products come on the market and new information is learned. Resource advisors need to monitor wildland fire management that may have the potential to adversely affect aquatic species. In the meantime we are required to only use the products available under national contract.

Other factors resulting from wildland fires include the potential for large, acute influxes of heated slag and ash which can have both immediate and direct impacts to aquatic species. This is due mainly to elevated water temperatures to lethal limits. Water quality is also impaired as changes in pH and phosphate can result when leached from ash.

#### Indirect Effects

Longer term impacts can result due to increases in runoff and higher peak flows, until adequate vegetation stabilizes soils and retains water. Other suppression efforts could also result in some short-term impacts, including the construction of fire lines which could increase erosion.

To reduce potential impacts, both direct and indirect, to aquatic species, the following minimization measures will be followed:

- Avoid aerial application of retardant or foam within 300 feet of any body of water including lakes, rivers, streams and ponds whether or not they contain aquatic life. (See exceptions under southwest willow flycatcher).
- Fire lines will be constructed/rehabilitated in a manner that limits the potential for erosion of sediments into aquatic habitats.
- Vegetation treatments conducted on uplands adjacent to aquatic systems will be designed and conducted in a manner that limits potential for soil erosion and sedimentation and increases vegetative ground cover. This includes riparian restoration work, and salt cedar removal, intended to improve habitats.
- Attempts will be made to minimize losses of vegetation within the Colorado River drainage and associated tributaries located in FMZ B-140-02. This is intended to minimize the potential for erosion of sediments into the Colorado River.
- Prior to demobilization of fire crews, all newly created fire lines in critical watershed areas will have water bars placed on them where erosion potential is high. This will be done in conjunction with the obliteration and reclamation of these fire lines.

#### **Alternative A:**

Impacts would be that same as the proposed action where fires are suppressed. However, negative long-term impacts under Alternative A would occur and would be cumulative. This is because hazardous fuel loading would continue and would increase the possibility that larger catastrophic wildland fires could occur which could more severely impact waters located within the GSFO planning area.

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### **NON-CRITICAL ELEMENTS - WILDLIFE, TERRESTRIAL**

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#### **WILDLIFE, TERRESTRIAL - Affected Environment:**

The GSFO provides habitat for an undetermined number of terrestrial wildlife species. Some of the species are year-long residents while others migrate seasonally. The description of the existing vegetation in the Vegetation section of this EA provides a good overview of the majority of wildlife habitats that occur within the GSFO. In addition, the Special Status Species section of this EA more specifically discusses the Federally listed and BLM Sensitive species found within the GSFO.

In large part, the emphasis for management of wildlife habitat has been determined by the social and economic values, and to some extent the prominence, of resident wildlife species in the ecosystem. The Colorado Division of Wildlife (CDOW) is responsible for managing the states fish and wildlife resources, while the BLM works cooperatively with the CDOW to manage wildlife habitats on public lands. Because the CDOW manages several species for sporting values, these species and their habitats have received management priority. While this EA will focus on the habitat for these species, it will more specifically address the wildlife species and habitats that are most likely to be affected by



implementation of the proposed action.

#### Mule deer and elk

Mule deer and elk are common within the GSFO boundary and are present year round. However, higher densities of animals use BLM lands during the winter when big game animals concentrate on limited winter ranges. Some summer range, and an abundance of transitional range are also located on BLM lands within the planning area.

Mule deer and elk generally occupy the same habitats across the landscape and many key habitat components overlap, particularly winter ranges. The intensity of winter use varies widely from year to year and from site to site, and is generally controlled, in the short term, by annual variation in the timing and amount of snowfall, and in the long-term by fluctuations in population levels.

The CDOW has designated three categories of winter range: normal winter range, severe winter range, and winter concentration areas. Winter range for both deer and elk is widely distributed throughout the planning area. The condition of winter range habitat varies greatly. Many sagebrush stands are old and decadent with little herbaceous understory and show signs of moderate to severe use by wintering animals. Other sagebrush stands have a better herbaceous understory and are more vigorous and healthy. A lack of fire is thought to be a meaningful factor regarding the current condition of many winter range habitats. Both deer and elk evolved with fire and fire has historically played an important role in maintaining habitat quality and diversity.

#### Predator/furbearers

A variety of predator/furbearer species are known to reside within the planning area. The most notable species are coyote, mountain lion, and black bear. Relative to the general population of their species, there appears to be abundant numbers of all three species present.

Coyotes are generalists and are capable of occupying a wide variety of habitat types. This species evolved and is well adapted to fire. Fire has helped to maintain a diversity of habitats for a diverse food base for this species.

Mountain lions are tied closely to the availability of their prey - mainly mule deer. Thus mountain lions are generally found in the same general habitats as mule deer and elk. Because mountain lions are more dependant on prey availability than habitat condition, fire generally plays more of an indirect role in the maintenance of this species.

Black bears generally prefer mesic habitats with good cover and abundant food resources. Black bears evolved with fire, and this species is closely tied to habitat conditions that favor good mast crops such as berries, acorns, seeds, nuts, and other herbaceous plants. Fire has historically helped to maintain a diversity of habitats in differing seral stages that favor production of food sources important to this species.

#### Neotropical birds

Neotropical birds are birds that winter in the tropics and nest in the continental United States. These birds are present throughout the GSFO planning area. Many species have begun to decline in numbers in recent years. Many of these species tend to prefer riparian habitat types which are resilient to fire.

Birds are particularly responsive to changes in the physical structure of habitats in which they nest and forage. The diversity of bird life that a vegetative type can support has been directly linked to the degree of vegetative layering. As vegetative structure becomes more complex, opportunities for nest sites and food resources increase, which allows for a larger variety of birds to inhabit the area. Fire helps to maintain a diversity of habitat types and seral stages within vegetative communities.

#### Small mammals

An undetermined number of small mammals reside within the planning area. These species include

prairie dogs, ground squirrels, mice, chipmunks, rabbits, and raccoons among many others. Many of these small mammals provide the main prey sources for raptor and larger carnivore species. These animals all evolved with fire and fire is important in maintaining the diversity of habitats important to these animals.

## **WILDLIFE, TERRESTRIAL - Environmental Consequences & Mitigation:**

### **Proposed Action:**

#### Mule deer and Elk

Mule deer and elk will both benefit from the implementation of the FMP. As fire is returned to fire dependant ecosystems, habitats important for both species will be maintained and improved. In addition, vegetative treatments will be designed to help improve habitats for these species as well.

Some short-term impacts could result as time lags associated with revegetation could result in short-term losses of forage, and hiding, thermal, and escape cover, depending on the vegetation either treated or burned. Because winter range is a limiting factor for these species and mule deer in particular, some parameters for amounts of desired fire and vegetative treatments in these habitats will be important. If large blocks of important winter habitat is destroyed by fire at one time, it is likely to have significant impacts on the local big game populations.

Planning of vegetative treatments will be done in a manner that improves the mosaic of vegetative age classes to a point where fire can take on a more natural role without the risk of burning too large an area at once. To help maintain the appropriate habitat components on big game ranges;

- Minimize large losses of key big game winter habitat on Public Lands, by limiting vegetation changes within localized severe big game winter ranges to 10% of the range per year over a 10 year period.
- Attempt to provide a 40/60 split of forage to cover for mule deer and elk.

#### Predator/Furbearers

These species should all benefit from the implementation of the FMP. As fire is returned to fire dependant ecosystems, habitats important for both species will be maintained and improved. In addition, vegetative treatments will be designed to help improve habitats for these species as well.

Some short-term impacts could result as time lags associated with revegetation could result in short-term reductions in prey populations or density. In addition, fire suppression could cause displacement of animals from established home ranges and fragment habitats for a short time. However, many prey species depend on fire to maintain habitat, and many small game species may increase after fire and vegetative treatments are initiated. No specific mitigation will be required for these species as they are mainly tied to their prey species.

#### Neotropical birds

These birds should benefit from the implementation of the FMP. As fire is returned to fire dependant ecosystems, habitats important for these birds will be maintained and improved. In addition, vegetative treatments will be designed to help improve habitats for these species as well.

Fragmentation of habitats is a concern for these bird species. Fire, vegetative treatments, and fire suppression activities could all result in some habitat fragmentation. However, maintaining a diverse age class of vegetation will be to the long-term benefit of these birds.

Riparian areas are especially important to many species of neotropical birds. These habitat are not prone to fire. However these habitats are resilient to fire and generally respond favorably following disturbance events. No specific mitigation will be required for these birds.

#### Small mammals

As with the majority of wildlife species found in the area, most all small mammals evolved with some level of natural fire. As such, most all species should benefit from the implementation of the FMP. As fires are allowed to burn and vegetative treatments are initiated, habitats important to small mammals will be maintained and enhanced.

There is the potential for some short-term impacts associated with the fire, vegetative treatments, and fire suppression activities. Short-term reductions in available forage could have impacts on numbers of some small mammals within local populations. In addition, the construction of fire lines could fragment and reduce habitats important to some species. However, as areas are burned or treated, forage quantity and quality should improve, which should increase animal productivity. Many species of small mammals respond favorably after fire as in many cases old, decadent plants are replaced with new grasses, forbs, and shrubs which provide nutrient rich forage. No specific mitigation will be required for small mammals.

#### **Alternative A:**

Under Alternative A all wildland fires would continue to be aggressively suppressed. This would result in similar impacts related to fire suppression activities as the proposed action. However, long-term impacts from this alternative would be negative and cumulative to most all terrestrial species. Hazardous fuels would continue to build up which could result in larger catastrophic fire events. In addition, natural fire would not be returned to the ecosystems dependant on it, which would further result in the deterioration of habitats important to a variety of terrestrial wildlife species.

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## **NON-CRITICAL ELEMENTS - ECONOMICS**

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### **ECONOMICS - Affected Environment:**

A growing concern of the Federal Wildland Fire Policy and shared by Members of Congress, agency administrators, and the public is the cost of fighting large wildland fires. Some critics believe expenditures are excessive and that the crisis nature of wildfire has led to imprudent use of personnel, equipment, and supplies. Others believe that firefighting practices are not as effective as some natural forces in bringing wildland fires under control and that fire suppression efforts should take better advantage of weather, terrain, fuel, and other natural conditions.

Wildland fires do create both short and long-term economic impacts. Where human populations are higher and large amounts of wildland-urban interface exists, as in the planning area, wildland fire impacts and suppression costs can be economically costly.

### **ECONOMICS - Environmental Consequences & Mitigation:**

Site-specific information on the economics of wildland fire and vegetation management strategies for the region is lacking. Attempting to derive economic measures for evaluating management strategies is beleaguered by inadequate data and the question of what values to include in the analysis. Because of the uncertainties, no quantitative economic analysis is made in this document. The following information is provided for the reader.

The economic impacts of catastrophic wildland fires requires careful calculation of all associated costs, losses, and gains. Butry, David T., D. E. Mercer, J. P. Prestemon, J M. Pye, and T P. Holmes (2002) noted we know of no organization in the United States that systematically and empirically quantifies economic suppression impacts of wildfires. The Federal Wildland Fire Policy affirms the current information on fire program benefits and costs are neither reliable nor consistent, and present program analysis methodologies are inadequate and inconsistent among Federal agencies. One dilemma is the question of what values should be included in such an analysis of diverse Federal wildlands. The National Interagency Fire Center (2000) reported that the federal portion of wildfire

suppression expenditures averaged \$500 million per year for the period 1994-99. Such totals, however, shed no light on suppression expenditures for one fire or set of fires to enable optimal suppression impacts and prevention policies.

Assessing the cost-effectiveness of fuel treatments also presents many challenges. These challenges are accentuated when the fuel treatment under consideration is prescribed fire, especially when proposed fires will be applied over a large geographic area such as a watershed. Prescribed fire may be the most cost-effective fuel treatment for an area, especially in areas managed for ecosystem sustainability or restoration of natural patterns and processes (Omi, P.N., and D. B. Rideout, 1998).

Specific quantitative analysis on the economic benefits of fuels treatments and management strategies is lacking. Most attempts to derive economic measures for evaluating fuel management benefits have been plagued by poor data (Omi 1982). Specifying the costs and losses from a fire, that by its very nature does not occur, is particularly difficult (Sapsis, 2002). Cost analysis are usually based on information provided by estimating the costs of suppressing wildland fires verses prescribed treatments under similar conditions on similar plots of land.

While prescribed fire treatments generally are lower in cost than other fuel treatments, i.e., mechanical thinning, fire also is more variable in its effects. This variability in treatment effect is especially evident in the spatial mosaic created by large-scale fire application. On the other hand, mechanical methods may not be suitable where land management objectives call for restoring or imitating natural patterns and processes over the landscape (Omi, P.N., and D. B. Rideout, 1998).

Conducting prescribed fires typically costs about \$30 per acre, but can range from \$5 to \$70 per acre depending on the size of the fire, the type of material burned, and the proximity to buildings. In contrast, suppressing wildland fires, including catastrophic wildfires, typically costs about \$700 per acre, but can range from \$500 to \$1,600 per acre, depending on the level of effort required (EPA, 1999).

Ingalsbee (2000) noted that the costs of reactive fire suppression are much higher compared to the costs of proactive prescribed burning. In 1998 on National Park Service lands, it cost approximately \$2,100 per hectare for wildfire suppression compared to only \$200 per hectare for prescribed burning.

#### **Proposed Action:**

Even with all the uncertainties, proactive vegetation management is presumed (qualitatively) to lower costs to taxpayers over the long term. Suppressing large or catastrophic wildland fires puts firefighters at risk and imposes significant costs for mobilizing firefighters and fire suppression equipment, including fire engines, aircraft, and associated fuels and supplies.

#### **Alternative A:**

No potential long term economic benefits possibly gained by managing to reduce the threat of large and catastrophic wildland fire.

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## List of Preparers

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### Interagency Fire

Phil Bowden  
Frankie Romero  
Mark Rodgers

### BLM Colorado State Office

Ron Hodgson  
Dennis Zachman  
Marcus Schmidt  
Glenn Wallace

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## PUBLIC PARTICIPATION

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A Notice of Intent to amend the RMP was published in the Federal Register on May 24, 2001 (Volume 66, Number 101, Page 28759-28760).

Public open houses were held in ;

Glenwood Springs	June 26, 2001 from 3:30 p.m. until 7:30 p.m.; at the Ramada Inn; 124 West 6 <sup>th</sup> Street; Glenwood Springs, Colorado
Eagle	June 28, 2001 from 3:30 p.m. until 7:30 p.m. in the Eagle County Room at the Eagle County Courthouse; 500 Broadway; Eagle, Colorado

A preliminary map and information was available at the open houses. The intent of the open houses were to seek ideas/comments/suggestions that would help create a draft FMP .

Public open houses were held in Glenwood Springs on June 26, 2001 and Eagle on June 28, 2001. The open houses provided ideas and suggestions that helped create a draft FMP. The GSFO then asked for comments on the draft FMP via a formal comment period which ran from July 30, 2001 through August 31, 2001. Comments were accepted and coordination with local, State and Federal agencies continued through April 2002. The 60-day Governor's consistency review and the 30-day protest period occurred in June and July of 2002 and both ended on August 2, 2002.

Throughout the planning process interested persons could visit the GSFO website at <http://www.co.blm.gov/gsra/gshome.htm> for current information or to see maps of the proposed fire management zones or contact the project planner.

Consultation occurred with:

Colorado State Forest Service  
Pitkin County  
Eagle County  
Garfield County  
Rio Blanco County  
Routt County  
Mesa County  
Town of Eagle  
Town of Glenwood Springs  
Town of Aspen

Town of Rifle  
Town of Gypsum  
Town of Parachute  
Town of New Castle  
Town of Silt  
Local Volunteer Fire Departments  
Colorado Division of Wildlife  
US Forest Service  
US Fish and Wildlife Service  
Colorado Air Pollution Control Division

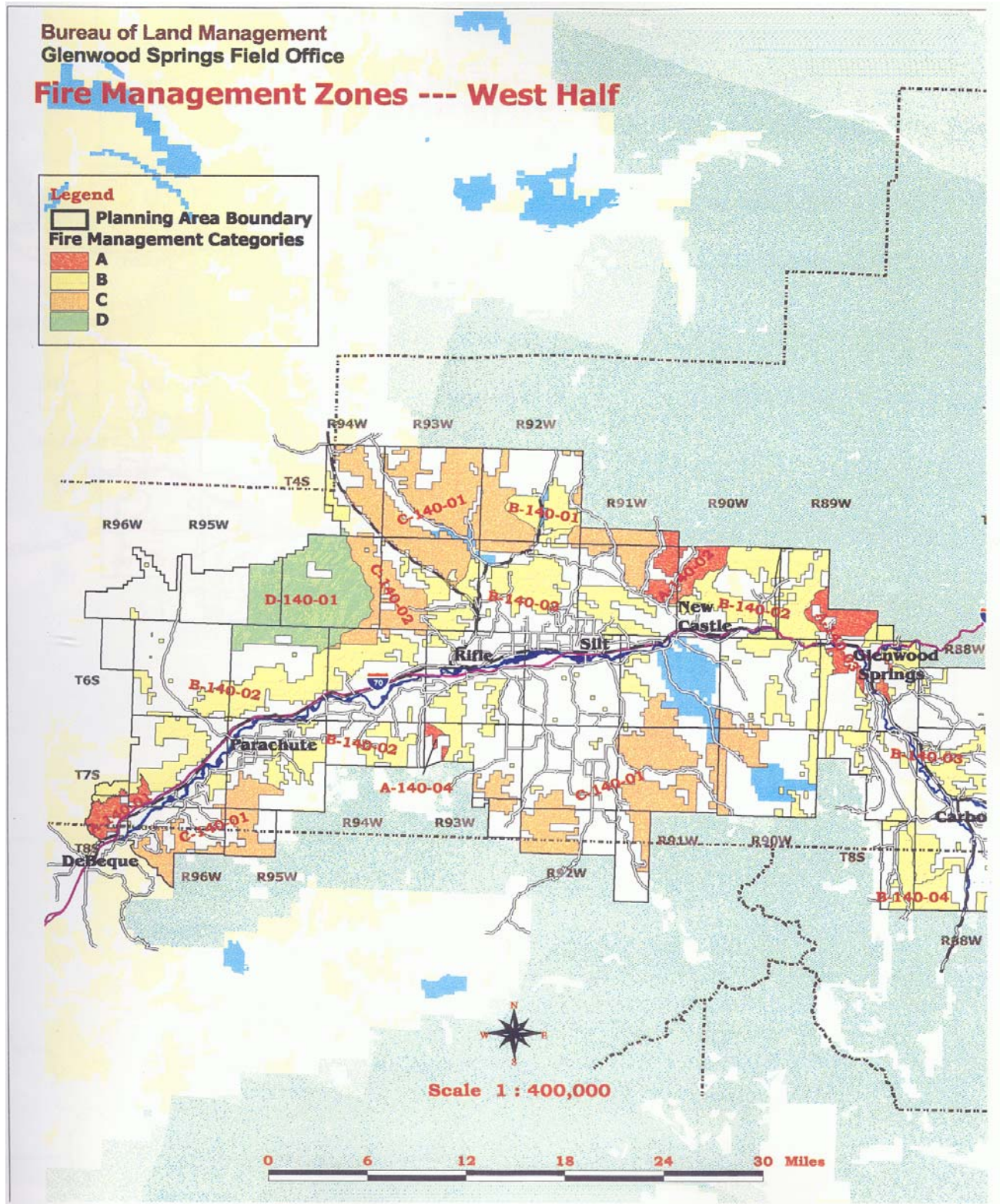
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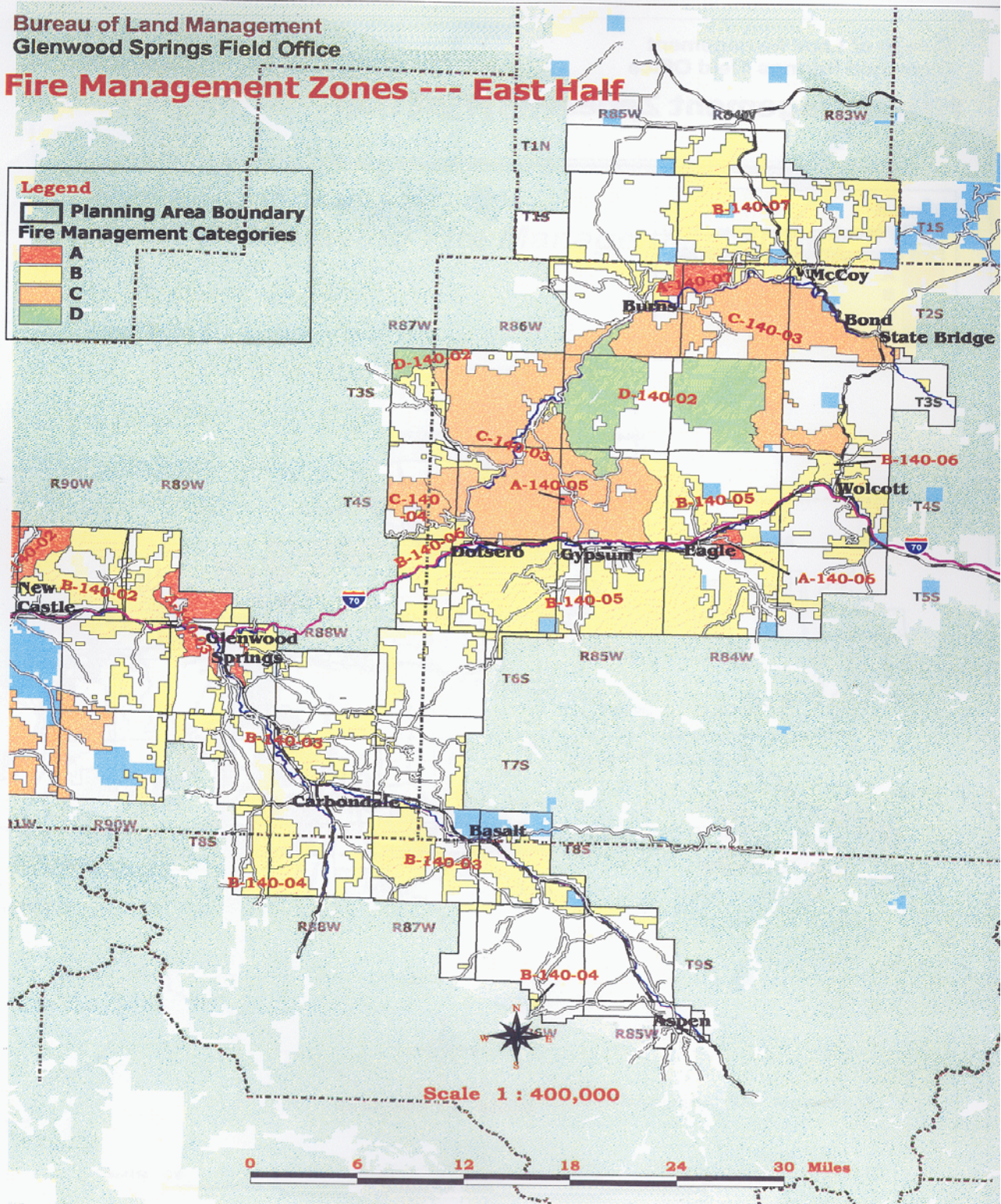
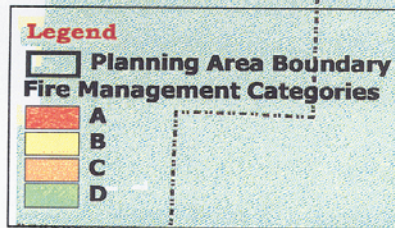
# ATTACHMENT A





Bureau of Land Management  
Glenwood Springs Field Office

## Fire Management Zones --- East Half



## ATTACHMENT B



### United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Ecological Services  
764 Horizon Drive, Building B  
Grand Junction, Colorado 81506-3946

IN REPLY REFER TO:

ES/CO:BLM  
MS 65412 GJ

May 6, 2002

#### Memorandum

To: Field Manager, Bureau of Land Management, Glenwood Springs, Colorado

From: Western Colorado Field Supervisor, Fish and Wildlife Service, Ecological Services, Grand Junction, Colorado

Subject: Concurrence for Glenwood Springs Fire Management Plan Biological Assessment

This responds to your revised biological assessment for the Glenwood Springs field office Fire Management Plan (GSFO FMP), dated March 20, 2002, and your request for concurrence on the affect determinations for the 14 threatened, endangered and candidate species.

The Fish and Wildlife Service has reviewed the submitted biological assessment and plan description and concurs with your determination that the plan "may affect, likely to adversely affect" bonytail (*Gila elegans*), razorback sucker (*Xyrauchen texanus*), Colorado pikeminnow<sup>1</sup> (*Ptychocheilus lucius*), humpback chub (*Gila cypha*) and "may result in short-term adverse modification of critical habitat" of the fishes due to possible water depletions for wildfire control. The Fish and Wildlife Service believes that major causes for the decline of the Colorado pikeminnow, humpback chub, razorback sucker and bonytail include the effect of impoundments and water depletion from the Colorado River and its tributaries. The Service believes that any action made possible by the plan that causes a depletion of water from the Upper Colorado River Basin should prompt a "may affect" finding for the listed fishes. The Service issued a programmatic biological opinion to the Bureau on June 13, 1994 (revised March 02, 2000), for Bureau0 authorized activities that involve minor water depletions. The programmatic biological opinion addresses minor water depletions of 125 acre-feet or less from the Upper Colorado River Basin on lands and activities administered by the Bureau in Colorado. The programmatic biological opinion concluded that emergency actions, such as wildfire control, were considered as possible projects under the Bureau's Resource Management Plan (RMP) of 1984 (revised 1988) and fit the criteria of minor depletions outlined in the programmatic biological opinion. Therefore, the GSFO FMP can be included under the programmatic biological opinion and water depletions for wildfire control will be documented in the State Director's annual report and

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<sup>1</sup>formerly squawfish



submitted to the Service in the yearly log, as required by the programmatic biological opinion .

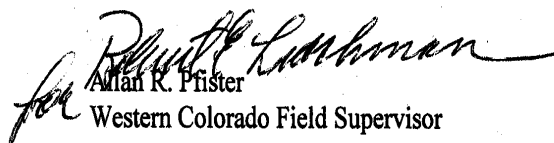
Based on the rational stated in the biological assessment, we concur with the agency's determination that the GSFO FMP "may affect, but is not likely to adversely affect" the following threatened and endangered species: Southwestern willow flycatcher (*Empidonax traillii extimus*), black-footed ferret (*Mustela nigripes*), Canada lynx (*Lynx canadensis*), bald eagle (*Haliaeetus leucocephalus*) and *Sclerocactus glaucus* (Uinta Basin hookless cactus) .

The Service agrees that the implementation of the GSFO FMP may impact the following candidate species: yellow-billed cuckoo (*Coccyzus americanus*), Gunnison sage-grouse (*Centrocercus minimus*), boreal toad (*Bufo boreas boreas*), *Phacelia submutica* (De Beque phacelia) and *Penstemon debilis* (Parachute beardtongue). However, the minimizations outlined in the FMP should prevent adverse effects to these species.

This concludes section 7 consultation on the GSFO FMP. Reinitiation of formal consultation is required if the GSFO FMP is modified in a manner that causes an effect to the listed species or critical habitat not considered in the biological assessment or if new information reveals impacts from the agency's actions that was not considered in the biological assessment. Additionally, if a new species is listed or critical habitat is designated that may be affected by actions resulting from the GSFO FMP, reinitiation of formal consultation will be required.

If you have any questions or concerns about this consultation or if the Service can be of further assistance, please contact Louanne McMartin at the letterhead address or (970) 245-3920, extension 36.

Sincerely,

  
Allan R. Pfister  
for Western Colorado Field Supervisor

cc: FWS/ES, Lakewood

